ART. XII. LIST OF THE HUMMINGBIRDS IN THE COLLECTION OF THE CARNEGIE MUSEUM

By W. E. Clyde Todd

Introduction

In preparing the present paper I have followed the same plan as that for the Tinamous, a list of which appeared in an earlier number of this volume. The Hummingbirds (Family Trochilidæ) are represented in the collection of the Carnegie Museum by 5,004 specimens, belonging to 324 species and subspecies. This figure includes all specimens of known origin which appear in the Museum catalogue, whether now in the collection or alienated therefrom by exchange; it excludes several hundred skins which lack exact data and which the Museum acquired in its early days. Nearly all the specimens in this latter class, however, have been weeded out of our cabinets.

Geographically considered, our Hummingbird collection is unevenly distributed. Because we have virtually no material from Ecuador and Peru, the metropolis of the family, numerous genera and species peculiar to these countries are wanting. But in forms inhabiting the Andes of Colombia and Venezuela, and the lowlands adjacent, the collection is especially rich. Bolivia, too, is well represented. From French Guiana we have good series of specimens of nearly all the species originally described from that country. The same is true of the Amazon Valley in Brazil and of the Rio Tapajóz and Rio Purús. In Central America only Costa Rica and British Honduras are well represented, and in the West Indies only Porto Rico, the Isle of Pines, and the Bahama Islands. We have a fair series of most of the forms found in the United States and a scattered representation from Mexico. Since in many cases the study and identification of our collection involved critical comparisons with material from other regions, it became necessary to draw upon the resources of other institutions. For the loan of such comparative material my thanks are due the authorities of the American Museum of Natural History, the Museum of Comparative Zoölogy, the United States National Museum and the Field Museum of Natural History.

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The literature pertaining to the family is extensive and began at an early date. The earlier writers, down even to Elliot (1878), were perforce content with very indifferent material, the exact source of which was seldom known. As a result much confusion and uncertainty still surround many of these early names, the exact application of which remains conjectural. In some cases, however, study of the type-specimens has cleared up the confusion and has placed the names on a stable basis. In the present paper some of these perplexing nomenclatural points are discussed in the light of the new material available. The main contribution the paper makes, however, is toward a better understanding of the geographic distribution of the various forms listed. Not all of the locality-names here used, it must be explained, appear on published maps; but their positions are definitely known, and in an appendix to the present paper they are approximately indicated.

The sequence of genera in the present list follows, in the main, that adopted by M. Eugene Simon (1921), the latest monographer of the group. Simon, however, was a "splitter" and recognized far too many generic names as valid. The present tendency is the other way. Mr. J. L. Peters, to whom we are looking for a new and revised list of this family in the next volume of his "Check-List of the Birds of the World," has been good enough to advise me of certain changes in names and of mergers which he intends to adopt. With most of these I am in full accord, and I am quoting him as authority. I am greatly indebted to Mr. Peters, not only for his courtesy in placing these notes at my disposal, but also for his comments on and corrections of this paper, which he has read in manuscript.

It remains to add that in a few cases, where errors were glaring, I have taken the liberty of emending names for the sake of consistency. I maintain that this can be done under present rules. The double "ii" has been dropped in patronymic names, as in the American Ornithologists' Union "Check-List."

The types of seven valid forms of Hummingbirds are already in the Carnegie Museum Collection; to these the present paper adds eight more. It is hoped that the paper will be found useful by students of this interesting group of birds.

All measurements are in millimeters, and the length of the bill is that of the exposed culmen.

List of Species

Doryfera ludoviciæ ludoviciæ (Bourcier and Mulsant).

Four specimens: Las Ventanas, Rio Negro, and Bitaco Valley, Colombia.

A single male from the last-named locality extends the known range of this hummingbird to the Subtropical Zone of the Western Andes. Three females have shorter bills than the male, but in coloration they resemble that sex.

Doryfera ludoviciæ veraguensis Salvin.

Three specimens: La Hondura, Costa Rica.

Although ranked by Ridgway (1911, 343) as a full species, this form is certainly only racially distinct from *D. ludoviciæ* of Colombia. However, the differences between the two are well pronounced. Ridgway describes the female as having the forehead dusky bronze, like the rest of the pileum, but our single female has a glittering forehead like that of the male.

Androdon æquatorialis Gould.

Four specimens: Andagoya and Potedó, Colombia.

Only one of these has the bill hooked and strongly serrate. The color of the crown and nape also varies considerably. Chapman (1917, 279) noticed the variation in the bill character but doubted its racial value. I think Simon (1921, 3, note) is right in claiming that it is a matter of age and season.

Threnetes leucurus leucurus (Linnæus).

Two specimens: Arimã, Brazil.

This form is already known from Teffé and the Rio Madeira, and these specimens extend its known range to the Rio Purús. The female example is much paler below than the male; it may be immature.

Threnetes ruckeri venezuelensis Cory (?)

Seven specimens: Santa Elena and Guachi, Venezuela.

So far as I can discover this form has heretofore been known from the type alone. Our specimens (one of which came from the same general region as the type itself) may justly be considered to represent it correctly. It is easily distinguishable from *darienensis* of Colombia (its nearest geographical representative) by the color of the underparts, in which the gray shade is well pronounced, although the cinnamon area on the breast is duller and less prominent. The terminal white area on the tail is perhaps less in extent. In all these characters, however, it approaches true *ruckeri;* and when it is actually compared with topotypes of that form, no constant differences between them appear. The resemblance must be due to parallelism, since the intervening race is sufficiently distinct. How to treat the case from a nomenclatural standpoint is an open question. Should we retain the name *venezuelensis* for the Venezuelan population, or should we suppress it in favor of *ruckeri,* to which a discontinuous range would have to be ascribed? For the present I prefer the former alternative.

Threnetes ruckeri darienensis Bangs and Barbour.

Ten specimens: Don Diego, El Cauca, El Tambor, Soatatá, Andagoya, and Malagita, Colombia.

Bangs and Penard (1924, 77) have studied the races of this species and tried to determine their proper names. After checking their work, I fully agree that *Trochilus ruckeri* Bourcier was almost certainly based on an immature example of the green-backed southern bird. In the present series are two young birds that fit Bourcier's description. One of these has no cinnamon whatever on the breast; the other only a trace. Adults have the back greener, the tail darker, and the underparts grayer, with less cinnamon on the breast, than do Costa Rican examples. They answer the description of the race *darienensis* and differ from topotypical specimens of *ruckeri* precisely as the describers claim. The range assigned to this race by Bangs and Penard (*l.c.*) is based on our specimens. The specimens from Andagoya and Malagita show that this form ranges southward along the Pacific coast of Colombia at least to the Chocó region.

Threnetes ruckeri ventosus Bangs and Penard.

Thirteen specimens: Volcano Turrialba, Guacimo, Cuabre, Guapiles, and El Hogar, Costa Rica.

Bangs and Penard (1924, 77) have renamed this well-marked race *ventosus,* on the ground that *ruckeri* was based on the bird of western Ecuador heretofore called *fraseri.* Some of our specimens incline more to greenish above than to bronzy, so that this character is not consistently diagnostic.

Glaucis hirsuta insularum Hellmayr.

Eleven specimens: Carenage, Heights of Aripo, and Poole, Trinidad.

I accept Hellmayr's name for the Trinidad birds of this species, but I am not strongly impressed with its characters. The separation was based mainly on size; and while our specimens do average a little larger than those from the mainland, yet the measurements of the two series overlap. Trinidad birds are generally dark-colored, but no more so than some mainland specimens.

Glaucis hirsuta hirsuta (Gmelin).

Thirty-nine specimens: Upata, El Peru Mine, Altagracia, Las Quiguas, El Hacha, El Trompillo, Sierra de Carabobo, Santa Lucia, and Cumanacoa, Venezuela; Cayenne and Mana, French Guiana; Benevides, Itaituba, and São Paulo de Olivença, Brazil; Buena Vista (Rio Surutu), Bolivia.

Variation in this hummingbird is of such a nature and covers such a wide range that the discrimination of geographic races is difficult indeed. The gloss of the upperparts runs from bronzy to dark green, and it has no racial significance. The black subterminal band and the terminal white area on the tail also vary widely in extent. Ridgway attributes this variation to age.

It is by no means certain that the above listed specimens all belong to one and the same form; in fact, it is probable that they do not. On geographical grounds the series from El Trompillo and the Sierra de Carabobo should be referred here, but in their duller coloration they approach *affinis*. One male (No. 47,083) is especially dark-colored. Specimens from the coast region of Venezuela are more brightly colored (*i.e.*, more decidedly buffy rufous) below than those from French Guiana and the lower Amazon. Females are particularly pale by comparison. If separable, these north coast birds might stand as *rojasi* Boucard, 1895. In general, however, the birds which I call *hirsuta* agree in being decidedly rufescent below—some more than others. There is also a wide divergency in size, at least as regards the length of the wing. But the series as a whole grades so insensibly into the western race (*affinis*) that I do not know exactly where to draw the line of separation. I have examined three specimens from Bahia, Brazil (American and U. S. National Museums); they agree essentially with our series. The status of Bolivian birds is doubtful; I refer them here provisionally. They are relatively paler below, like the three skins from São Paulo de Olivença, on the upper Amazon.

Glaucis hirsuta affinis Lawrence.

Forty specimens: Don Amo, Don Diego, Fundación, Trojas de Cataca, Dibulla, Turbaco, Puerto Zapote, Monteria, Jaraquiel, El Tambor, Murindó, and Yumbo, Colombia; Santa Elena and Guachi, Venezuela.

On the differential characters of this race compare Todd and Carriker, 1922, 272. Specimens from other parts of Colombia agree with those from the Santa Marta region, except that two male birds, from Jaraquiel and Monteria respectively, are uncommonly small (wing, 61, 58.5) and may indicate the existence of a dwarf race in this part. The Venezuelan specimens, coming as they do from the same general region as the type of *fusca* Cory, doubtless represent that supposed form. While they answer Cory's description well, they are obviously the same as Colombian specimens. Apparently he did not compare his birds with *affinis*, but only with *hirsuta*, from which they differ as he says. One of his topotypes is matched very closely by our No. 90,500. Chapman has compared Colombian specimens with the type of *affinis* and found them identical.

Young birds differ from adults in lacking any decided buffy rufous on the breast, this part being barred with buffy on a dusky greenish background; the wing-coverts, wings, and upperparts generally also show more or less buffy feather-tipping.

Glaucis ænea Lawrence.

Seven specimens: Andagoya and Cordoba, Colombia; El Hogar and El Pozo de Terraba, Costa Rica.

This form I have little hesitation in keeping specifically distinct from *G. hirsuta*. The distribution of the two forms in question would argue to this effect. I know of no place where they actually occur together, but their respective ranges certainly overlap.

Genus PHAETHORNIS Swainson.

This generic name has usually been cited from the Zoological Journal, 3, December, 1827, p. 357, where it appears as *Phœthornis*. As correctly pointed out by Oberholser (Proceedings Biological Society of Washington, 32, 1919, p. 48), however, it will have to be taken from Swainson's earlier article in the Philosophical Magazine, n. s., 1, June, 1827, p. 441, where it is differently spelled *Phæthornis*. In both places diphthongs are used. There might be some doubt as to which was intended, were it not that a few pages farther back (p. 436) there is an unmistakable "œ" diphthong, which is obviously different. From a classical point of view the use of a diphthong here is an error, and this is one case where it can be discarded with good grace.

In the present paper I follow Peters in including all the Hermit Hummingbirds under the one genus, whereas Simon would recognize six genera. The present group is a beautiful example of the persistence of color characters (clearly indicative of affinity) through the changes and modifications that so-called structural characters have undergone.

Phaethornis guy[i] guy[i] (Lesson).

Nine specimens: Carenage, Heights of Aripo, and Heights of Orepouche, Trinidad; San Rafael and El Yaque, Venezuela.

I venture to emend the original *guy* of Lesson to the genitive form.

Our mainland specimens (one male, three females) all have longer tails than those from Trinidad—perhaps because of their fresher condition, or perhaps because of an actual racial difference. It is a curious and significant fact that this species is not known from the coast region of Venezuela west of Cumaná, nor from the Santa Marta region of Colombia. The present race is thus completely isolated from the others.

Phaethornis guy[i] apicalis (von Tschudi).

Twelve specimens: El Cauca, Bucaramanga, Rio Negro, Bitaco Valley, and Pavas, Colombia.

On the substitution of *apicalis* for *emiliæ* compare Zimmer, 1930, 272. Our females are about as small as those from Peru to which he refers and thus there can be little doubt but that he is correct in changing the name. Specimens from western Colombia tend to be darker below and bluer above than those from eastern Colombia; thus they approach *coruscus*.

Phaethornis guy[i] coruscus Bangs.

Thirteen specimens: Volcano Irazú, Volcano Turrialba, La Hondura, Juan Viñas, Ujuras de Terraba, and Peralta, Costa Rica.

This is a strongly marked race, well set off by the rich, deep coloration of the adult males.

Phaethornis yaruqui sancti-johannis Hellmayr.

Sixteen specimens: El Tambo, Andagoya, Potedó, Malagita, and Cordoba, Colombia.

The localities represented are all in the Tropical Zone of the Pacific coast. Some variation obtains in the depth of the color of the underparts in these specimens, but they have not been compared with typical *yaruqui* from Ecuador.

Phaethornis superciliosus (Linnæus).

Twenty specimens: Rio Yuruan and Altagracia, Venezuela; Pied Saut, French Guiana; Obidos, Brazil.

P. superciliosus may be distinguished from its near relatives by its buffy underparts, grayish white crissum and lateral edgings to the rectrices, and relatively short bill. The median throat-stripe is also well marked. I use a binomial name because I am convinced that all four of the forms subordinated by Hellmayr (1912, 52) under *superciliosus* are really distinct species. Simon (1921, 13, 352) has described a supposed race from the upper Orinoco as *saturatior*, but after comparing our French Guiana specimens with fifteen others from the Orinoco (Rothschild Collection), I can find no grounds for the distinction.

Phaethornis insignis Todd.

Seven specimens: Villa Braga and Itaituba, Brazil.

This form was originally described (Annals Carnegie Museum, 25, 1937, 246) as a race of *P. superciliosus*, but further study has convinced me that it should be ranked as a species. Intergradation is definitely contra-indicated; the color differences are constant; and the tail averages shorter. It is a much smaller bird than *P. ochraceiventris*. (For further remarks see the original description, *l.c.*)

Phaethornis muelleri Hellmayr.

Seven specimens: Benevides, Colonia do Mojuy, and Miritituba, Brazil.

This is a strongly marked form, which I would call a species. Its gray color beneath, grayish white crissum, and buffy gray edgings to the rectrices are distinctive. It ranges on the south side of the Amazon, between the Rio Tapajóz and the Rio Tocantins, and perhaps still farther east.

Phaethornis ochraceiventris Hellmayr.

Six specimens: Arimã and São Paulo de Olivença, Brazil.

These have been handled and identified by Hellmayr himself. (See his critical remarks in Novitates Zoologicae, 14, 1907, 393.) Simon (1921, 254) reduces this form to a race of *bolivianus*, and in this conclusion he is followed by Hartert (1922, 404). To this I disagree, although I admit the close relationship of these forms. Nor can I bring myself to consider *ochraceiventris* conspecific with either *P. superciliosus* or *P. longirostris*. I believe it should stand alone. It has a bill as large as that of *P. malaris*, and a long tail by comparison. The pale median gular stripe is more or less indicated.

Phaethornis bolivianus Gould.

Three specimens: Cerro Hosáne and San José, Bolivia.

At first glance this little-known form might be considered conspecific with *P. ochraceiventris*, from which it differs in its smaller size, smaller, weaker bill, shorter tail, and darker, less purely buff underparts. Hellmayr (1912, 52) calls it a race of *P. superciliosus*, but to this I cannot agree. In *bolivianus* the crissum is uniform with the rest of the underparts. The female is obviously paler than the male and has the upperparts more greenish, less bronzy.

Phaethornis moorei Lawrence.

Five specimens: Tonantins, Brazil.

On geographical grounds these should belong to this form, described from the Rio Napo, eastern Ecuador. Six Ecuador skins lent by the American Museum of Natural History, however, differed in certain minor respects; accordingly I was constrained to send our birds to John T. Zimmer for comparison with Lawrence's type and with more material from the same general region. The differences I had noted disappeared in this comparison, and Mr. Zimmer was able to state definitely that the east-Ecuadorean and the Tonantins birds belong to the same form as the type of *moorei*.

Although the identity of these specimens is thus settled, the relationships of the form they represent are not yet clear. Most authors to the contrary notwithstanding, *P. moorei* is almost certainly not a race of *P. superciliosus*, than which it is much larger and grayer, and has a less distinct median gular stripe. In all these respects it is in fact much closer to

P. malaris, although it is smaller in size. Its pileum is slightly glossed with green, as in *malaris*. Nevertheless, I cannot see my way clear to making the two conspecific—largely on geographical grounds—and so for the present I propose to consider *moorei* as specifically distinct from its allies.

Phaethornis malaris (Nordmann).

Thirty-three specimens: Cayenne, Tamanoir, and Pied Saut, French Guiana.

Salvin (1892, 271) relegates *P. malaris* to the synonymy of *P. superciliosus* with few misgivings, but later authors have discriminated the two. *P. malaris* is much larger, darker (more grayish, less buffy), and longer-billed than the other; its throat has a very indistinct median stripe. Since the two occur together, they must be distinct species.

Phaethornis longirostris susurrus Bangs.

Twenty-four specimens: Onaca, Cincinnati, Minca, Las Taguas, Don Diego, Pueblo Viejo, Chirua, and Heights of Chirua, Colombia.

This is a strongly marked isolated race, peculiar to the Santa Marta region of Colombia; it shows no signs of intergradation with any other form and might well be ranked as a species.

Phaethornis longirostris cassini Lawrence.

Seventeen specimens: El Cauca, El Tambor, Soatatá, and Murindó, Colombia.

Colombian specimens of *P. longirostris* differ slightly from Costa Rican skins (*cephalus*) in the less buffy, more grayish tone of their underparts, with more obsolete barring or spotting. They are barely separable as a subspecies and will take the name *cassini*, as pointed out by Bangs and Barbour (1922, 203) and by Griscom (1932a, 329). Lawrence's type came from Turbo, and our specimens from the lower Atrato must be the same. Lawrence based his separation on the "reddish bronze" (instead of greenish) color of the upperparts, but this character is actually not significant, since it varies with the individual.

This hummingbird does not appear in Chapman's list (1917), although it was taken by Salmon at Remedios in Antioquia, and by Carriker at two points in Santander. It is thus a Tropical Zone form, inhabiting the lower Atrato Valley and the middle Magdalena Valley.

Phaethornis longirostris cephalus (Bourcier and Mulsant).

Twenty specimens: Pozo Azúl de Pirris, Guapiles, Cuabre, Rio Sicsola, El Hogar, and El Pozo de Terraba, Costa Rica.

Birds from southwestern Costa Rica are perhaps a little greener on the back, on an average, than those from eastern Costa Rica, but the difference is slight, in spite of Griscom's findings to the contrary (1932a, 329). He thinks that *cephalus* must be accepted for "elements which are easily separable from each other in series," or else that the range of *P. longirostris* is discontinuous. In any case, I cannot follow him in holding *superciliosus* and *longirostris* conspecific. Their respective ranges do not touch, as far as I know.

Phaethornis syrmatophorus syrmatophorus Gould.

Three specimens: Bitaco Valley, Colombia.

On the nomenclature and systematics of this form compare Hellmayr, 1911, 1179.

Phaethornis hispidus (Gould).

Fourteen specimens: Rio Mocho, Venezuela; Buena Vista (Rio Surutu), Bolivia; Palmar, Colombia; Hyutanahan, Nova Olinda, and Arimã, Brazil.

According to von Berlepsch and Hartert (1902, 81) no races of this species are admissible, but Hellmayr (1910, 374) recognizes a northern race *villosus*. Chapman (1917, 282) also admits the latter, after changing its name to *oseryi*, but later (1926, 286) he insists that after all the species is indivisible. Myself, I am not so sure, although the distinctive characters do not lie in the color of the upper tail-coverts, as Hellmayr supposes, but in the general coloration. Our birds from Venezuela and eastern Colombia are easily separable from the Bolivian specimens by their darker, more grayish, less brownish underparts, and by their darker green upperparts. The Rio Purús skins agree with those from Venezuela and Colombia, although Hellmayr (*l.c.*) ranges Rio Madeira specimens with those from Bolivia without question.

Phaethornis anthophilus anthophilus (Bourcier and Mulsant).

Twenty-four specimens: Buritaca, Don Amo, Don Diego, La Tigrera, Trojas de Cataca, Turbaco, Puerto Zapote, Gamarra, Aguachica, and

Loma Larga, Colombia; El Hacha, Aroa, Sabana de Mendoza, Santa Elena, and Puerto La Cruz, Venezuela.

Our Venezuelan examples are precisely like those from Colombia; they lend no support whatever to the claims of *fuscicapillus* of Cory as a valid race.

Phaethornis rupununii[1] **rupununii** Boucard.

Four specimens: Maripa, El Callao, and El Llagual, Venezuela.

Two examples that I take to be females have less dark mottling on the throat than those I call males (the sexing of the specimens is faulty, I think). Chubb (1916, 386) describes a bird collected by Whitely in British Guiana as having the "tail-feathers bronze-green edged and tipped with white, the outer feathers darker." Although the feather-edgings in our Venezuelan birds are pale buffy rufous rather than white, I cannot believe that specimens from these two adjacent countries are really different.

Phaethornis rupununii amazonicus Hellmayr.

Five specimens: Santarem, Brazil.

In addition to these I have examined two other specimens, from Itaituba and Urucurituba respectively (Rothschild Collection), which, when compared with our two males from Venezuela, differ much as Hellmayr says. I am inclined to believe that two races can be recognized, as Hellmayr claims. In the Santarem series the buffy rufous edgings of the outer rectrices are wider and more richly colored by comparison. In Venezuelan birds these edgings are obvious, as already noted, but they are narrower and paler.

Phaethornis pretrei (Lesson and Delattre).

Six specimens: Yacuiba and Samaipata, Bolivia.

Five specimens from Bahia, Brazil (American Museum), are precisely like ours from Bolivia. Hellmayr (1929, 384) is quite right in stating that Bolivian specimens of this species are not different, but he made a curious mistake in referring my *P. subochraceus* to *P. pretrei.* They are entirely different species. But the *P. garleppi* of Boucard (1893) from the description must be *pretrei*. Hellmayr refers to two specimens from Samaipata—doubtless the two in our collection, above listed—but the one from Santa Cruz de la Sierra is *subochraceus*.

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[1] I do not see why the specific name should not be corrected, as above; it was meant to refer to the Rupununi River in British Guiana.

Phaethornis subochraceus Todd.

Seven specimens: Santa Cruz de la Sierra, Buena Vista, Warnes, and Rio Quiser, Bolivia.

Description.—Above bronzy green with buffy brownish feather-edgings, the pileum and nape more brownish; wings dusky purple; median rectrices bronzy green basally, broadly white terminally; other rectrices similar, with a black area separating the green bases from the white tips, which diminish in size from the middle pair outward; outermost pair of rectrices with white external margins; broad superciliary and malar stripes warm buff, enclosing an auricular patch of mummy brown; entire underparts warm buff to cinnamon buff, more or less suffused with dusky, and the chin and throat dusky brownish in contrast (but the transition not abrupt); "iris dark brown; feet brown; bill black, the basal half or more of the lower mandible yellow." Wing (type), 50; tail, 55; bill, 29.

With a series of seven specimens now available, instead of the single one on which the name was originally based, it is evident that this is a well-characterized species. It was compared at the time with *P. squalidus*, with which it has actually nothing to do, since it belongs to the subgeneric group *Anisoterus*, in which the rectrices next the middle pair are also elongated. I am at a loss to understand how Hellmayr, who examined the type, could have identified it with *pretrei*—unless on the supposition that he picked up by some mischance our specimens of the latter (lying side by side in the same tray) and got them mixed in his notes (compare 1929, 384). *P. pretrei* is much larger; the upper tail-coverts are cinnamon rufous, and the upperparts more greenish; the underparts are more deeply colored, and the throat has a pale, not a dark, median stripe. They are perfectly distinct species.

Phaethornis augusti augusti (Bourcier).

Twenty-seven specimens: El Peru Mine, La Cumbre de Valencia, San Esteban, Guarico, Anzoategui, El Trompillo, Sierra de Carabobo, Tabay, Pie del Cerro, and El Yaque, Venezuela; Ocaña, Chinivaque, and La Colorada, Colombia.

Simon (1921, 16, 257) discriminates two races of this species, neither of which is validated by our series. The characters he alleges are all variable, but not according to locality. He refers to "Bogotá" specimens, and we have such from both slopes of the Eastern Andes, although Chapman omits the species from his list. Our Ocaña specimen is indeed closely matched by the one from farthest east (El Peru Mine). But since Chapman (1931, 70), with topotypical material at his disposal, has indorsed the race from Mt. Roraima, a trinomial name becomes necessary.

Phaethornis bourcieri (Lesson).

Five specimens: Tamanoir, French Guiana; Tonantins and Manacapurú, Brazil.

Amazonian birds tend to be darker (more greenish, less bronzy) above, and grayer, less buffy, below, than those from French Guiana. Chapman (1926, 287) has also noted slight differences, but a larger series would be necessary to bring them out.

This species is the type of *Ametrornis* Reichenbach (1854), characterized by its nearly straight bill as compared with typical *Phaethornis*, which, however, it resembles in other characters.

Phaethornis philippii (Bourcier).

Eight specimens: Hyutanahan, Nova Olinda, and São Paulo de Olivença, Brazil.

All these are new localities for this rare species, which also belongs to *Ametrornis.*

Phaethornis longuemareus (Lesson).

Two specimens: Cayenne, French Guiana.

In my opinion the close relationship of this species to *P. striigularis* may be admitted without thereby considering the two conspecific.

Phaethornis striigularis ignobilis Todd.

Eleven specimens: Las Quiguas, El Trompillo, Sabana de Mendoza, Santa Elena, and Santa Lucia, Venezuela.

This form was described on the basis of the three specimens from Las Quiguas, which were compared with "Bogotá" skins of typical *striigularis* in the U. S. National Museum, and found to differ therefrom as said (Todd, Proceedings Biological Society of Washington, 26, 1913, 173).

With a larger series of both *striigularis* and *ignobilis* now available, the differences between them stand out well. *P. s. ignobilis* is distinctly more buffy below than the typical race and has the throat less distinctly streaked.

Phaethornis striigularis striigularis Gould.

Eight specimens: Don Diego, Chirua, El Cauca, and El Tambor, Colombia.

Compare our previous remarks on this form (Todd and Carriker, 1922, 272). I cannot follow Griscom (1932a, 330) in reducing it to a race of *P. longuemareus.*

Phaethornis striigularis subrufescens Chapman.

Nine specimens: Soatatá, Murindó, Quibdó, Andagoya, and Cordoba, Colombia.

If, as I believe, these are correctly identified as *subrufescens* (=*atrimentalis* auctorum nec Lawrence), they seem to be far more closely related to *saturatus* than to *striigularis*, which forms they serve to connect. Soatatá skins have less dark mottling on the throat than those from farther up the Atrato River.

According to Griscom (1932a, 330) *Phaethornis adolphi nelsoni* Bangs and Barbour (=*fraterculus* Nelson nec Gould) is a synonym of *subrufescens.* I would not go so far as to consider any of these western forms conspecific with *P. longuemareus*, whose range is moreover removed and isolated.

Phaethornis striigularis saturatus Ridgway.

Thirteen specimens: Escazú, Guapiles, Volcano Turrialba, Rio Sicsola, El Hogar, Miravalles, and El Pozo de Terraba, Costa Rica; Manatee Lagoon and Freetown, British Honduras.

No. 26,741, from El Hogar, is Ridgway's type. According to this authority the color-variation observable in this series is sexual. Peters (1929, 428) thinks that Ridgway erred in considering birds from Guatemala and British Honduras referable to *saturatus* (he actually called them intermediates). Our two examples from British Honduras, however, are just like the type of *saturatus.* Thus I agree (inferentially) with Griscom (1932b, 197) as to the range of *saturatus*, but I do not agree with him (1932a, 330) in reducing this form to a race of *P. longuemareus* of French Guiana. With a fair series of *subrufescens*, *striigularis*, and *ignobilis*, available for comparison with *saturatus*, I should rate these four as races of the same species; and since *striigularis* is the earliest name, the present form would then stand as above.

Phaethornis griseogularis Gould.

Two specimens: El Cauca and Rio Negro, Colombia.

Phaethornis ruber ruber (Linnæus).

Five specimens: Benevides, Colonia do Mojuy, Hyutanahan, Nova Olinda, and Arimã, Brazil.

No. 74,518, a female from Colonia do Mojuy, differs from others of the same sex in the color of the median rectrices subterminally being black below the rufous area, instead of bronzy brown. Hellmayr (1906, 375) refers to this character as belonging to the northern race *episcopus*, but it may have some other significance.

Phaethornis ruber episcopus Gould.

Three specimens: Rio Mocho and Rio Yuruan, Venezuela; Obidos, Brazil.

I accept this race mainly on the authority of Hellmayr (1906, 375, and 1907, 75). He has handled these particular specimens. One male has the tips of the middle rectrices narrowly white, succeeded by a broad subterminal band of dark steel blue (almost black). Hellmayr claims this as one of the characters of *episcopus*, but I doubt its constancy. Both the Venezuelan specimens are adults, showing the black pectoral band.

Phaethornis stuarti Hartert.

Nine specimens: Buena Vista (Rio Yapacani and Rio Surutu), Bolivia.

These correspond very well with the original description, except that the under tail-coverts and the tips of the lateral rectrices are not white, but rufescent buffy—at least in most specimens. Hellmayr has handled the series, and his identification appears on one label.

Eutoxeres aquila munda Griscom.

Three specimens: Andagoya and Heights of Caldas, Colombia.

Chapman (1917, 284) calls birds of this species from western Colombia *salvini*, but the above differ from Costa Rican specimens of the latter race in smaller size, less bronzy green upperparts, more bluish rump, and less buffy streaking below. Thus they agree better with the description of *munda* Griscom (1932a, 330) than with that of *viridior* (*l.c.*, 331), to which on geographical grounds they should belong. They have been compared with four males and three females of *munda* from the type-series. Our No. 66,412, ♂, is quite the same, as are also Nos. 66,219, ♀, and 67,040, "♂," when laid beside the females. Ridgway describes the sexes of this species as alike, but there are some slight differences observable. The males are darker and blacker below, and they often have a slight tinge of bright color (violaceous or bronzy), while the light stripes are whiter. Females are duller, more dusky, below; the light stripes are definitely more buffy. I have also examined a single topotype of *viridior* (No. 124,577, Museum of Comparative Zoölogy). While it is sexed as a male, it agrees well with the females from eastern Panama and from western Colombia. To my mind this agreement signifies identity, and I can see no reason for recognizing more than one form in western Colombia, the proper name for which is *munda*.

Eutoxeres aquila salvini Gould.

Nine specimens: Volcano Turrialba, Costa Rica.

One of these is peculiar in having a very decided bronzy shade to the feathers of the hindneck, upper back, and breast; this probably denotes high plumage.

Phæochroa cuvieri berlepschi Hellmayr and von Seilern.

Six specimens: Turbaco, Gamarra, and Aguachica, Colombia.

When I described this race (at Oberholser's suggestion) and named it *notia* (Proceedings Biological Society of Washington, 30, 1917, 5) I had unfortunately not seen the earlier description by Hellmayr and von Seilern, whose name will of course supplant the one I gave.

Phæochroa cuvieri maculicauda Griscom.

Six specimens: Bebedero, Miravalles, Esparta, and Buenos Aires, Costa Rica.

Griscom (1932a, 332) insists that birds of this species from western Costa Rica differ enough from those from Panama to merit a name, as above.

Campylopterus curvipennis curvipennis (Lichtenstein).

Three specimens: Palitla (San Luis Potosi), Axtla (San Luis Potosi), and Tamazunchale (San Luis Potosi), Mexico.

Following Peters (*in litt.*), I would merge *Pampa* with *Campylopterus.* These two groups resemble each other in coloration—the females in particular.

Trochilus curvirostris of Lichtenstein appears to have priority over *Ornismya pampa* of Lesson.

Campylopterus largipennis (Boddaert).

Forty-one specimens: Rio Mocho and El Dorado, Venezuela; Cayenne, Tamanoir, and Pied Saut, French Guiana; Obidos, Brazil.

Simon (1921, 29) describes a supposed race *maronicus* from the Maroni, the river separating French from Dutch Guiana. The assigned characters do not impress me as important, and I can find no geographical variations in our series that would justify subdivision of the species.

Campylopterus obscurus obscurus Gould.

Six specimens: Benevides and Miritituba, Brazil.

I unhesitatingly keep this form specifically distinct from *C. largipennis,* although Berlioz (1931, 86) merges them under one specific head. The birds from the east bank of the Rio Tapajóz I place with the topotypical Pará (Benevides) specimens.

Campylopterus obscurus æquatorialis Gould.

Twenty-three specimens: Buena Vista (Rio Surutu and Rio Yapacani), Cerro del Amboró, Cerro Hosáne, and Samaipata, Bolivia; Itaituba, Apacy, and Arimã, Brazil.

These have been compared with six specimens from eastern Ecuador (American Museum), with which they appear to be identical. This race tends to be greener, less bronzy, above than true *obscurus,* and the terminal spots of the outer rectrices are paler gray and more extended (but never purer white, as sometimes described). The difference between specimens from the west bank is slight, but on the whole the former agree better with Bolivian birds, which are ranged by Hellmayr (1910, 375) with *æquatorialis.* According to this authority specimens from the Rio Madeira show intermediate tendencies.

Campylopterus ensipennis (Swainson).

Eighteen specimens: San Rafael, Mirasol, and El Yaque, Venezuela.

Immature males may be singled out by their wings, in which the outer primaries are nearly normal, instead of enlarged and flattened.

Campylopterus falcatus (Swainson).

Twenty-three specimens: La Palmita, Rio Negro, and Chinivaque, Colombia; Guamito, La Azulita, and Colonia Tovar, Venezuela.

So far as I can see birds from Colombia and Venezuela are alike. The width of the terminal green band on the tail is a variable quantity.

Campylopterus hemileucurus (Lichtenstein).

Twenty specimens: Volcano Irazú, Escazú, Navarro, La Hondura, Juan Viñas, Ujuras de Terraba, and La Estrella de Cartago, Costa Rica; Las Panitas and Catacombas, Honduras; Manatee Lagoon and Cockscomb Mountains, British Honduras.

No geographical differences appear in this series, so I do not recognize a southern race *mellitus*. Berlioz, the latest reviewer of this group (1931, 87), also discounts *mellitus*, although he notes the average shorter bill of Mexican birds. In immature males, in which the blue feathers are just coming in, the shafts of the primaries are much less thickened than in adults.

As said by Carriker (1910, 522) and by Griscom (1932b, 198), this species is properly one of the Subtropical Zone, but the Manatee Lagoon records (July 17 and August 1) suggest that at times it descends to lower levels.

Eupetomena macroura macroura (Gmelin).

Five specimens: Arucauá and Santarem, Brazil.

The Arucauá birds are near-topotypes. The exposed portions of the tail-feathers of the Santarem specimen are not steel blue, but dull dusky bronze. The blue color is less extended on the breast, but this may be due to the make of the skin.

Hellmayr (1929, 387), in referring to *macroura*, says that it has "less acuminate lateral rectrices," but our specimens certainly have these feathers conspicuously pointed.

Eupetomena macroura subsp.?

Two specimens: Rio Quiser, Bolivia.

These can scarcely be the same as the Arucauá specimens, since the outer rectrices are narrower and have rounded tips; the blue of the throat is less extended over the breast and a little less intense. But perhaps these characters are signs of immaturity? Simon (1921, 33) comments on birds from Rio Beni, Bolivia, which he considers intermediates between *macroura* and *hirundo*. Our specimens have been compared with four males from Peru (American Museum), representing *hirundo*. In this form the blue of the head has a greenish tinge and is much duller and more restricted than in *macroura*. Our Bolivian specimens agree with *hirundo* in having the blue thus restricted, especially on the breast; the color is only a little duller than in *macroura*. A specimen from San Lorenzo River, Matto Grosso, Brazil (No. 127,392, Collection American Museum), agrees best with the Bolivian specimens. They represent a form that is probably worthy of recognition, but what name it should bear is a question. Mrs. Naumburg (1930, 148) thinks that Simon is probably correct in predicating the existence of an intermediate race. Hellmayr (1929, 387), however, insists that Simon's *prasina* is a pure synonym of *macroura*. Unfortunately, Simon designated no type or type-locality, but his description might be construed to apply to the above specimens. If it does not, then I think they are worthy of a name.

Florisuga mellivora (Linnæus).

One hundred and fourteen specimens: Buena Vista (including Rio Surutu and Rio Yapacani), Cerro del Amboró, and Cerro Hosáne, Bolivia; Benevides, Apacy, Nova Olinda, Arimã, Tonantins, and Manacapurú, Brazil; Cayenne, Tamanoir, and Pied Saut, French Guiana; La Bomba, Las Quiguas, and Santa Elena, Venezuela; Don Amo, Don Diego, Minca, Cincinnati, La Tigrera, Dibulla, El Cauca, El Tambor, Murindó, Quibdó, Andagoya, and La Cumbre, Colombia, Guapiles, Volcano Turrialba, and El Hogar, Costa Rica; Manatee Lagoon, British Honduras.

A study of this fine series reveals a certain amount of geographical variation—possibly enough for the recognition of a southern race. In adult males from Bolivia (thirteen specimens examined) the green band below the blue area of the throat is wide and thus rather conspicuous. In the northern birds, on the other hand, this band tends to be comparatively narrow, and in some examples it is not in evidence at all—the blue is abruptly followed by white. Females from Bolivia (seven specimens) afford even better differential characters: they are obviously paler and grayer below than northern birds; the white of the abdomen is more "solid," less mottled with dark color, and is thus purer. However, in some Central American male examples the blue pectoral band is almost as well developed as in those from Bolivia, and the matter is further complicated by the makeup of the skin, which must always be taken into account. Even if the Bolivian bird is really racially distinct, its proper name would still be an open question. Boucard (Genera of Humming Birds, 1895, 340) set up *Florisuga peruviana* as a provisional name for four specimens from Ecuador and Peru. His description is not diagnostic, but it is fair to take Pebas, Peru, as the restricted type-locality. I have handled thirteen skins from (northern and eastern) Ecuador and six from eastern Peru, including three males from Pebas collected by Hauxwell (American Museum and U. S. National Museum). Also, we have one male from Tonantins, on the Rio Solimoës. Two males from Pebas agree better with those from Bolivia; a third is like those from French Guiana; and the Peruvian and Ecuadorean series as a whole is obviously intermediate with respect to the characters above pointed out. The results of the comparison are thus inconclusive, and I do not venture to make any formal separation at this time, but content myself with drawing attention to the case.

At first glance French Guiana birds seem different, but it is only because the series contains a great many immature and wrongly sexed specimens. These young birds do not have distinctly buffy cheeks and sides of the throat, as do the Colombian and Venezuelan birds; these parts are dull brown or grayish white, or (in one case) nearly pure white. I do not understand the significance of this aberration. Adult females from French Guiana agree with others from Central America and northern South America in general in their relatively darker coloration as compared with Bolivian females; adult males have the reduced greenish pectoral band characteristic of the northern birds.

A male from Santa Elena, Venezuela (No. 67,575), measures: wing, 74; tail, 43, and is thus comparable in size with the Tobago birds whose measurements Ridgway gives (1911, 577, note). Some of our specimens from the Santa Marta region are also large. I do not think that *tobagensis* of Ridgway can be maintained under the circumstances.

There is one specimen in the collection which must be a hybrid between this species and some other—perhaps an *Amazilia*. It is No. 56,974 (sexed as a male), and comes from Cayenne, French Guiana. It has the characteristic tail- and throat-pattern of the female of *Florisuga mellivora*, but the upper breast and the back are strongly glossed with green, and the lower breast and sides are decidedly dusky. The white margins of the throat-feathers are also less prominent.

Colibri coruscans (Gould).

Eighty specimens: Buena Vista (Rio Yapacani), Cerro Hosáne, Samaipata, Cochabamba, Caluya, Molle-molle, Incachaca, San José, Vacas, Guaqui, La Paz, Tiraque, and Pocona, Bolivia; Galera, Peru; Lloa, Ecuador; Ocana, Las Ventanas, Paramo Guerrero, Ramirez, Paramo de San Pedro, La Colorada, and San Lorenzo, Colombia; Guarico, Anzoategui, Paramo de Rosas, Guamito, Teta de Nequitao, Las Mesitas, Tabay, Colonia Tovar, Pico Naiguata, and Petare, Venezuela.

Mr. Peters calls my attention to the fact that the specific name *coruscans* of Gould (1846) has priority over the same author's *iolotus* (1847), and is in fact not invalidated by the earlier use of *coruscus* by Lichtenstein (1830) and by Fraser (1840).

At one time I thought that a northern race of this hummingbird could be recognized, but after a study of our present large series I am decidedly of the opinion that the species is not divisible. Birds from the several parts of the range are subject to precisely the same variations in both size and coloration, and I fail to find a single character for their separation. Compare, in this connection, Zimmer, 1930, 273, and Chapman, 1926, 300.

Colibri cyanotus crissalis, subsp. nov.

Five specimens: Incachaca, Bolivia.

Type, No. 85,666, Collection Carnegie Museum, adult male; Incachaca, Bolivia, September 11, 1921; José Steinbach.

Subspecific characters.—Similar to *Colibri cyanotus cyanotus* (Bourcier and Mulsant) of Colombia and Venezuela, but under tail-coverts almost uniform buff, with the greenish centers of the feathers reduced or wanting.

Range.—Andes of Bolivia (Subtropical Zone).

Remarks.—Ridgway (1911, 485) was the first to suspect that Peruvian and Bolivian specimens of *C. cyanotus* might prove to be racially distinct, as indeed they are, although the fact evidently escaped the notice of Salvin and other authors. Certain examples of typical *cyanotus* (particularly immature birds) approach this southern race in their characters, but in the series the difference holds good. This would suggest that the new race is the ancestral form, from which the others have been derived.

Colibri cyanotus cyanotus (Bourcier and Mulsant).

Forty-one specimens: La Cumbre de Valencia, Guarico, Guamito, Tabay, Colonia Tovar, El Yaque, and La Elvecia, Venezuela; Cincinnati, San Lorenzo, La Palmita, Pueblo Nuevo, La Pica, La Colorada, and Vista Nieve, Colombia.

Compare my previous remarks on this form (1922, 263). Specimens from the states of Santander and Boyaca, Colombia, agree essentially with topotypical Venezuelan examples. Santa Marta specimens tend towards *cabanidis.*

Colibri cyanotus cabanidis (Heine).

Eight specimens: Volcano Irazú, Volcano Turrialba, and La Estrella de Cartago, Costa Rica.

Compare my remarks under the last form. In my opinion *cabanidis* is an easily recognizable race.

Colibri serrirostris (Vieillot).

Nine specimens: Santa Cruz de la Sierra, Buena Vista, and Samaipata, Bolivia.

Two young birds, apparently referable to this species, are dull buffy gray below, with the under tail-coverts white and fluffy, as in the adults; there is a buff malar stripe, and the pileum and nape have rusty buff feather-tipping.

Colibri thalassinus (Swainson).

Eleven specimens: San Bartolo (Distrito Federal) and Contreras (Distrito Federal), Mexico.

Colibri delphinæ (Lesson).

Thirty-eight specimens: Buena Vista, Bolivia; Bonda, Cincinnati, Dibulla, Heights of Chirua, and La Cumbre, Colombia; San German de Upata, Altagracia, and La Azulita, Venezuela; Escazú and Miravalles, Costa Rica; Manatee Lagoon, British Honduras.

This is another species of wide range but with no apparent geographical variation.

Anthracothorax nigricollis nigricollis (Vieillot).

Eighty-eight specimens: Buena Vista and Cerro del Amboró, Bolivia; Benevides, Santarem, Manacapurú, and Rio Manacapurú, Brazil; Mana and Pied Saut, French Guiana; Poole, Trinidad; El Dorado, La Bomba, San German de Upata, Guarico, El Trompillo, Sierra de Carabobo, Santa Elena, Puerto La Cruz, Mariches, and Cumanacoa, Venezuela; Bonda, Don Amo, Cincinnati, Fundación, Turbaco, Cartagena, and Soatatá, Colombia.

Variation, affecting nearly all features of coloration, is much in evidence in this series, but I cannot satisfactorily make out any geographic races. Birds from Bolivia, it is true, agree in being more bronzy or golden green above than most northern specimens, but they are closely matched by some of the latter. I would consider all the specimens above listed as belonging to one variable form.

Hellmayr (1929, 388) says that this species "has yet to be discovered" in French Guiana. It must be rare there compared with *A. viridigula*, but we have one specimen from Mana and one from Pied Saut.

In a young bird from Guarico (February 9) the bill is only about half grown. In coloration this bird resembles the adult female, but the median black stripe below is very narrow, and ends with the breast. The pileum is dusky, barred with vandyke brown, with an indication of a paler median stripe anteriorly. There is a white spot behind the eye. Female and immature birds make up about half of our series.

Anthracothorax nigricollis iridescens (Gould).

Two specimens: Yumbo, Colombia.

It is no surprise to find that these two specimens, the first of this species known from western Colombia, should prove to belong to the race *iridescens*, described from western Ecuador. They are probably intermediate but fit the description in that their bills are longer than in typical *nigricollis* and that the black of the throat is margined with green.

Anthracothorax prevosti prevosti (Lesson).

Nine specimens: Cofradia, Honduras; Manatee Lagoon, Half Moon Cay, Freetown, Middle Cay, and Northeast Cay, British Honduras; Axtla (San Luis Potosi) and Tamazunchale (San Luis Potosi), Mexico.

In males the general coloration varies from dull green to bright bronzy green, and the tail from steel blue to bright purple.

Anthracothorax prevosti gracilirostris Ridgway.

One specimen: Bebedero, Costa Rica.

A specimen of *prevosti* from Honduras has an even shorter bill than this Costa Rican bird.

Anthracothorax prevosti viridicordatus Cory.

One specimen: Guarico, Venezuela.

Ridgway (1911, 465) doubtfully attributes *A. p. gracilirostris* to Venezuela, mainly on the strength of Salvin and Godman's remarks (Biologia Centrali-Americana, 2, 1892, 279) on specimens they had examined from that country. In 1913 Cory described a male bird from the Rio Aurare in Venezuela under the above caption, but the characters he gave are all variables and inconstant in the species. It is most unlikely, however, in view of its separated range, that the Venezuelan bird could be the same as that of Costa Rica; therefore for the present I accept Cory's race and refer the above specimen thereto. It is a female, and certainly agrees much better with females of *prevosti* than with those of *nigricollis.*

Anthracothorax viridigula (Boddaert).

Fifty-eight specimens: Arucauá, Santarem, Obidos, and Islands near Obidos, Brazil; Cayenne and Mana, French Guiana.

This species has usually been called *A. gramineus* (Gmelin). For the change of name compare Mathews, Austral Avian Record, 3, 1915, 41.

Anthracothorax dominicus (Linnæus).

Two specimens: Jérémie and La Grotta, Haiti.

Anthracothorax aurulentus (Audebert and Vieillot).

Seven specimens: Loiza, Guayama, and Santa Isabel, Porto Rico.

A young male and a young female, with short bills, are dated March 12 and 20, respectively.

Anthracothorax viridis (Audebert and Vieillot).

Eleven specimens: Adjuntas and Utuado, Porto Rico.

Several immature examples are included (April 4, 23). The general coloration is duller than in adults, and the white tips to the rectrices average wider. The chin and sides of the throat are grayish white spotted with dusky; the glittering green feathers are confined to a triangular patch on the middle of the throat.

Sericotes holosericeus holosericeus (Linnæus).

Three specimens: Fajardo, Porto Rico.

These compare favorably with other examples from the Lesser Antilles. They are at present the only known specimens from Porto Rico, although the species is common on the outlying island of Vieques.

Chrysolampis elatus (Linnæus).

Ninety-nine specimens: Bonda, Don Diego, Cincinnati, Dibulla, Turbaco, Cartagena, Aguachica, El Cauca, Ocaña, Yumbo, and Mariquita, Colombia; Savonet and Fuik, Curaçao; Ciudad Bolivar, San Felix, San German de Upata, El Trompillo, Sierra de Carabobo, Sabana de Mendoza, La Azulita, Petare, and Cumanacoa, Venezuela; Mana, French Guiana.

Much variation prevails in this series, but it is not correlated with locality. Age accounts for a good deal of this variation. Immature males may usually be picked out by the new glittering feathers coming in on the head and throat. A series from San Felix taken in February show this moult, and specimens from other localities, taken in May, June, and August, also illustrate it. In certain of these young males some of the rectrices are extensively chestnut; these feathers grow with the others in asymmetrical pattern, but in most young males the rectrices are all grayish basally, as in the young female. So few of the females in our series have chestnut rectrices that I suspect that this is a character which some individuals never acquire, and in any case, it is pretty certain that these birds breed in this imperfect stage of plumage.

Orthorhynchus exilis exilis (Gmelin).

Two specimens: Vieques Island, Porto Rico; Port Castries, Santa Lucia, Lesser Antilles.

Klais guimeti (Bourcier and Mulsant).

Nine specimens: Lagunita de Aroa and Santa Lucia, Venezuela; Guapiles, Carrillo, Miravalles, and Buenos Aires, Costa Rica.

A supposed race of this species from Peru has been described by Sztolcman (Annales Zoologici Musei Polonici Historiae Naturalis, 5, 1926, 213); if this is valid, a trinomial name would be necessary.

Paphosia helenæ (Delattre).

Two specimens: Juan Viñas, Costa Rica.

Mr. Peters writes me that he proposes to merge *Paphosia* and *Dialia*. both of which genera are recognized by Simon as valid.

Paphosia adorabilis (Salvin).

Two specimens: Juan Viñas and San Pedro, Costa Rica.

Lophornis ornatus (Boddaert).

Seventeen specimens: Heights of Aripo, Trinidad; Cayenne and Pied Saut, French Guiana; San Rafael and Mirasol, Venezuela.

Only one fully adult male is included. Variation is excessive, especially among females; several of these are almost uniformly cinnamomeous below, while others conform more to the description in the "British Museum Catalogue" (1892, 421).

Lophornis gouldi (Lesson).

One specimen: Benevides, Brazil.

A young male, referred here solely on geographical grounds—*cf.* Hellmayr, 1906, 379.

Lophornis delattrei (Lesson).

Ten specimens: Buena Vista, San Carlos, and Cerro Hosâne, Bolivia.

I fully agree with Simon (1921, 285) in transferring Lesson's name to the South American species formerly known as *regulus*. In describing the Central American form Ridgway makes no mention whatever of any spangles in the crest-feathers, such as are a prominent feature in adult males of our series, above listed.

Lophornis stictolophus Salvin and Elliot.

Four specimens: La Azulita and Santa Lucia, Venezuela.

Popelairia conversi æquatorialis (von Berlepsch and Taczanowski).

Thirteen specimens: El Tambo, Colombia.

Chapman did not at first (1917) recognize *æquatorialis* (as does Ridgway for this form), but in his Ecuador report (1926, 327) he admits it. The exact region whence come specimens ("Bogotá" skins) of true *conversi* remains to be discovered.

Discosura longicauda (Gmelin).

Four specimens: Cayenne and Pied Saut, French Guiana.

Chlorostilbon notatus (Reichenbach).

Eighty-nine specimens: Benevides, Santarem, Hyutanahan, Arimã, São Paulo de Olivença, Tonantins, and Manacapurú, Brazil; Cayenne, Mana, and Pied Saut, French Guiana; Heights of Aripo and Heights of Orepouche, Trinidad; La Lajita, Rio Mocho, El Llagual, Rio Yuruan, El Dorado, La Bomba, El Peru Mine, El Callao, Altagracia, Las Quiguas, El Hacha, Lagunita de Aroa, El Trompillo, and Santa Lucia, Venezuela.

A. L. Butler (Ibis, 1926, 335) insists that the female of this species resembles the male, and that the supposed females described by authors are really immature birds. His claim is not borne out by our series—unless on the basis of uniformly incorrect sexing by all our collectors. Some females, however, are decidedly green below, while others are white, spangled with green. Immature males have the abdomen more or less extensively grayish white. I find no mention of the white flank-tufts in the description of this species, nor are they shown on Gould's plate. In adult males the bill runs from 15 to 18 mm. in length.

Some difference of opinion has arisen among later writers over the validity of a supposed southern race of this species. In 1913 Riley described a hummingbird from the Rio Purús as *Chlorostilbon puruensis*, a name which two years later he discovered would have to be transferred to *Chlorestes* "*cœruleus*" (=*notatus*) as a subspecies thereof. Simon (1921, 309) and Hellmayr (1929, 393) both discount the validity of the supposed race. Dunajewski (1938, 320) compared specimens from Peru with topotypes of *notatus* from Cayenne, and found them the same. At one time I thought that *puruensis* (of which we possess topotypes) could be maintained on the ground of the small, barely suggested blue chin-spot, but now I find that Rio Purús birds resemble those from Bahia in this respect, as Simon claims. In the Bahia specimens examined, the color of the upperparts is more bronzy, a feature which I find repeated in some examples of our French Guiana series. Hellmayr notes these differences, but says they are not constant. More recently Griscom and Greenway (1941, 174), after a study of their series, have reached a different conclusion. They claim that birds from the lower Amazon differ "very markedly and strikingly" from those from Surinam, Trinidad, and east Ecuador "in being glittering bluish green on most of the underparts, the chin violet passing rapidly to bluish green, only the lower edge of the abdomen glittering green or golden green." I fail to make out these differences in our series. We have eighteen adult males from French Guiana for comparison with Brazilian specimens; if anything, the difference is the other way around, but I should certainly not consider the two series as racially distinct. Nor can I discover any actual racial variation in our series as a whole. These authors, however, are of course quite correct in adopting Wied's name *cyanogenys* as the earliest name for such a southern race if it were recognizable.

I am inclined to merge *Chlorestes* with *Chlorostilbon*, although most authors keep it distinct and place it near *Hylocharis*.

Chlorostilbon aureoventris aureoventris
(D'Orbigny and Lafresnaye).

Seventy-nine specimens: Puerto Suarez, Santa Cruz de la Sierra, Buena Vista, Caiza, Yacuiba, Cerro Hosáne, Samaipata, Cochabamba, and Comarapa, Bolivia.

In juvenal dress, represented by specimens dated October 25 and November 6, the male is much duller even than the adult female; it has buffy brownish gray underparts and cinnamon-tipped feathers on the upperparts. Adults vary greatly in the color of the posterior underparts; some have a strong coppery sheen, while others are more golden. Several young birds taken in December and January are undergoing postjuvenal moult.

Hellmayr (1929, 389) rejects the supposed race *tucumanus* of Simon without hesitation, but Mrs. Naumburg (1930, 155) accepts it on the basis of a slight difference in size and quotes the measurements of three Bolivian skins from Simon. Our three males from Cochabamba (the type-locality) vary in size as follows: wing, 51, 54, 55; tail, 30, 33, 35; bill, 19.5, 20.5. Two males from Yacuiba, southern Bolivia; wing, 48, 49; tail, 29, 30;

bill, 16, 17.5. Eight males from the Santa Cruz region: wing, 48-51.5; tail, 28-30.5; bill, 17-18.5. Thus it appears that Cochabamba birds are a little larger than those from southern Bolivia, so that, if any subdivision is made on this basis, the latter would be entitled to the name *tucumanus*.

Chlorostilbon caniveti caniveti (Lesson).

Four specimens: Manatee Lagoon, British Honduras; Tamazunchale (San Luis Potosi), Mexico.

In a young male in moult (July 17) new glittering green feathers are coming in on the sides of the neck and on the median underparts; the rectrices are shaped like those of the adult female but are colored like those of the adult male, although the tail is not so deeply forked. This is one of the species of hummingbirds in which the female has a longer bill than the male.

Chlorostilbon caniveti salvini (Cabanis and Heine).

Two specimens: Miravalles and La Estrella de Cartago, Costa Rica.

The Miravalles bird is an immature male in transition dress; its median rectrices are tipped with green instead of gray.

Chlorostilbon auriceps (Gould).

One specimen: Chilpancingo (Guerrero), Mexico.

A young bird, not exactly fitting the description of the adult female, is provisionally referred to this species.

Chlorostilbon gibsoni (Fraser).

Eight specimens: Mariquita, Colombia.

This adds another locality to those from which this species is definitely known. It is perfectly distinct from *C. haeberlini*.

Chlorostilbon haeberlini (Reichenbach).

Twenty-nine specimens: Mamatoco, Calamar, Turbaco, Cartagena, Puerto Zapote, El Cauca, La Palmita, Pueblo Nuevo, Ocaña, and Fonseca, Colombia.

Compare my previous remarks on this species (1922, 257). As I pointed out then, its true home is the lower Magdalena Valley, west at least to the Rio Sinu, east to the edge of the Santa Marta region, and south at least to the latitude of Ocaña, where the species appears on the eastern slope of the Andes. Farther up the Magdalena Valley it is replaced by *C. gibsoni*, from which it differs in its glittering crown and in longer tail, with narrower outer rectrices and deeper furcation. It differs from *C. nitens* in the same ways and also in coloration of its bill, in which the lower mandible is pale (in the skin; flesh-colored in life).

Chlorostilbon nitens nitens Lawrence.

Fourteen specimens: Aroa, Tocuyo, Sabana de Mendoza, and Motatan, Venezuela; Rio Hacha, Colombia.

These agree with each other, and differ from topotypical specimens of *C. caribœus* from Curaçao, in having the under mandible pale (except terminally) in the skin, almost as in the Colombian *C. haeberlini.* On the labels the color of the bill is marked "black; blood-red below," or "black, flesh below basally." In some few cases it is simply "black," but it is fair to assume that in these it is meant to describe the upper mandible only. In this series the general green coloration of the males would seem to be a little darker than in *caribœus.* It agrees with this form in proportions, especially as regards the length and furcation of the tail, and by this very token differs from *haeberlini*, which has a much longer and more deeply forked tail.

I had referred our specimens from Rio Hacha to *caribœus*, although I remarked their peculiarities at the time (1922, 258). On re-examination I find them to agree with the Venezuelan series above listed. These fit the description of *Chlorostilbon nitens* Lawrence (Annals Lyceum Natural History New York, 7, 1861, 305), described from Venezuela. The type-specimen of this form, kindly placed at my disposal by Mr. John T. Zimmer of the American Museum of Natural History, is a male in good condition and fresh plumage. It is rather more golden green above and below than our birds, but it is approached in this respect by some individuals, No. 36,564, for example. It agrees absolutely with our series in the color of the bill and in the furcation of the tail. Salvin, Hartert, and Simon all quote *nitens* as a synonym of *haeberlini*, apparently because it was described as having a bicolored bill as does that species. Actually, however, it is much closer to *caribœus*, and it has a tail of the same shape. If, as I believe, it is conspecific therewith, the two forms will stand as *C. nitens nitens* and *C. nitens caribœus.*

The locality attributed to the type-specimen is thus fully confirmed. (Salvin lists a second specimen from Lawrence under the head of *C. haeberlini.*) The range of *nitens* proper comprises all that region west and north of the Andes of Merida in Venezuela, east nearly to the Caribbean Sea, and west across the Gulf of Maracaibo to the Goajira Peninsula in Colombia. In other words, it takes in the Maracaibo Basin.

Chlorostilbon nitens caribæus Lawrence.

Thirty-seven specimens: Chacachacare Island, Trinidad; San Felix, Upata, El Callao, San German de Upata, Altagracia, El Trompillo, Sierra de Carabobo, and Pie del Cerro, Venezuela; St. Patrick, Savonet, and Fuik, Curaçao.

In accordance with the foregoing considerations Lawrence's name *nitens*, which has ten years' priority over *caribæus* of the same author, will become the proper specific appellation for this form. I agree with Wetmore (1939, 206) that *lessoni* of Simon and Dalmas is not recognizable. Some of our specimens have a bluish sheen below in certain lights, like the birds he describes. This supposed form was based on examples from the coast of Venezuela east of Caracas. Nor can I make out the race *nanus*, described by von Berlepsch and Hartert (1902, 86) from the Orinoco region, although the latter author (1921, 406) insists on its validity. I cannot verify any of the characters ascribed to this form in the series at my command. It is true that there is much variation in color, but these variations are not correlated with locality. Some specimens have a bright golden sheen, very prominent on the glittering areas of the upper- and underparts, while others show a decided bluish tinge in the same light. Young birds (shot in February) resemble the female, but they are suffused with buffy below and "scaled" with rusty cinnamon above. One taken February 20 is in full postjuvenal moult, and others taken on Curaçao as late as May 10 still show signs of immaturity.

Chlorostilbon nitens orinocensis (Simon) (?)

One specimen: La Colorada, Colombia.

A juvenal example, which might on geographical grounds be referable to this supposed form, is in the collection. It may be remarked in passing that Simon places von Berlepsch and Hartert's *nanus* in the synonymy of *C. daphne subfurcata.*

Chlorostilbon melanorhynchus Gould.

Thirteen specimens: Caldas, Bitaco Valley, and La Cumbre, Colombia.

On the proper name of this form compare Chapman (1917, 290), who says that the characters ascribed to *pumilus* are covered by individual variations in the series examined. In his later remarks (1926, 296) he recognizes *pumilus* as a slightly differentiated race of the Tropical and lower Subtropical Zones in Ecuador, but he says that in Colombia the difference does not hold, although Simon has described the bird of western Colombia as *perviridis* (1921, 63, 290). Under the circumstances I think a binomial is sufficient. Still later Chapman (1931, 72) by inference makes this form conspecific with *prasinus*. The two forms are certainly close in coloration, but their differently shaped tails are to my mind good specific characters—unless, indeed, *subfurcatus* is considered as a connecting form.

Chlorostilbon assimilis Lawrence.

Four specimens: Boruca and Buenos Aires, Costa Rica.

Chlorostilbon prasinus prasinus (Lesson).

Twenty-one specimens: Cayenne and Mana, French Guiana.

The *Chlorostilbon brevicaudatus* of Gould, 1861, was described from Cayenne, but von Berlepsch (1908, 267) and Hellmayr (1929, 389, note) both opine that Lesson's *prasinus* (1830) is an earlier and pertinent name for the same form. Lesson supposed that his type-specimen came from Brazil. The sheen of the throat and breast varies from golden green to blue, according to the way the light falls.

Chlorostilbon prasinus phæopygus (von Tschudi).

Two specimens: Buena Vista, Bolivia.

A series of ten specimens of this form from Peru (Rio Cayumba, Chinchao, Chunchomayo, Huánuco, and Vista Alegre), lent for examination by the Field Museum, divide into two groups, according to coloration. Males from the last three localities are greener above and have the throat decidedly bluish in sheen as compared with those from the other localities. These differences are sufficiently obvious, and could be held of subspecific value were the localities represented not so close together and in the same faunal area. Our male from Buena Vista agrees fairly well with specimens from Chinchao in its bronzy coloration above and below. It may possibly represent a recognizable subspecies, but for the present I must refer it to *phæopygus* of von Tschudi, which according to Zimmer (1930, 275) is an earlier name for *daphne* Bonaparte. This form bears a strong superficial resemblance to *C. aureoventris*, of which we have a large series from Bolivia. Its real relationships, however, appear to be with *C. prasinus*, which it resembles in the shape of its tail and in its wholly black bill. In coloration it is a close replica of *aureoventris*, from which it may readily be distinguished, however, by its differently colored bill and relatively shorter, less forked tail. In the male the furcation is only 4 mm., as against an average of 8 mm. in *aureoventris*. It is a larger bird than *prasinus* and is easily separable therefrom by the golden sheen of the body plumage.

Chlorostilbon poortmani poortmani (Bourcier and Mulsant).

Four specimens: Chinivaque, Boca del Monte, and La Colorada, Colombia.

Like those recorded by Chapman, these come from the eastern slope of the Eastern Andes. On the western slope it is represented by

Chlorostilbon poortmani euchloris (Reichenbach).

Fifteen specimens: Pueblo Nuevo, Ocaña, Bucaramanga, and Peña Blanca, Colombia.

There is a previous record from Bucaramanga (von Berlepsch), but the other localities are new and serve to establish its range as above given. Its longer bill is its best differential character.

Chlorostilbon russatus (Salvin and Godman).

Eleven specimens: Cincinnati, Minca, Pueblo Viejo, and San Miguel, Colombia.

This very distinct species is confined to the Santa Marta region, where it appears to inhabit the Upper Tropical Zone. Compare my remarks in an earlier paper (1922, 256).

Chlorostilbon aliciæ[2] (Bourcier).

Five specimens: El Trompillo, Sierra de Carabobo, and San Rafael, Venezuela.

[2] The original spelling is *alice*.

Our specimen from San Rafael agrees with two males from Rancho Grande (U. S. National Museum). The others have the upperparts and wing-coverts more bronzy—a difference that I lay to season (April–June, instead of November).

Chlorostilbon stenurus stenurus (Cabanis and Heine).

Fifteen specimens: Guamito and Tabay, Venezuela.

In its extremely narrowed outer rectrices this species is extreme for a *Chlorostilbon*. The emargination of the tail is slight. In the female the narrowing of the rectrices is less marked.

Merida is the type-locality for this form, and the above specimens are virtual topotypes. The occurrence of this species at Ocaña, Colombia, as claimed by Salvin (1892, 72) on the strength of a female example collected by Wyatt, is open to question. We have only *C. poortmani euchloris* from that locality.

Chlorostilbon stenurus ignotus, subsp. nov.

Fourteen specimens: La Cumbre de Valencia, Guarico, and Anzoategui, Venezuela.

Type, No. 34,974, Collection Carnegie Museum, adult male; La Cumbre de Valencia, Carabobo, Venezuela, October 5, 1910; M. A. Carriker, Jr.

Subspecific characters.—Similar to *Chlorostilbon stenurus stenurus* (Cabanis and Heine) of the Merida region of Venezuela, but size smaller, general coloration more yellowish green, and tail duller, darker green.

Measurements.—Male (type): wing, 40; tail, 21; bill, 14. Female (No. 36,801): wing, 39; tail, 22; bill, 14.

Range.—Coast range of Venezuela (west of Lake Valencia) and southward in the highlands to the extreme southern part of the State of Lara.

Remarks.—The characters of this well-marked race are obvious in both sexes, although they are more conspicuous in the male. So far as I can discover this species is unrecorded from the coast range of Venezuela. It is interesting to find that both races maintain their characters where their respective ranges approximate each other.

Riccordia maugæa (Audebert and Vieillot).

Nine specimens: Guayama and Adjuntas, Porto Rico.

This species, usually placed in *Riccordia*, Ridgway (1911, 548, 550) transfers to *Chlorostilbon*, where, however, it seems decidedly out of place when compared with the species of the "*Panychlora*" group or with those having the tail only slightly forked. Moreover, one of Ridgway's diagnostic characters (p. 307), "adult male with tail less than two-thirds as long as wing," breaks down with reference to *maugæa*, as shown by his own measurements on p. 550. I see no reason for splitting off the present species from its West Indian congeners, and I would recognize *Riccordia* on the basis of its lengthened tail with relatively wider rectrices. Peters, however, would unite it with *Chlorostilbon*. Admittedly the two genera are closely related, but in my opinion they are taxonomically as well as geographically recognizable.

Riccordia swainsoni (Lesson).

One specimen: Constanza, Santo Domingo.

Riccordia ricordi ricordi (Gervais).

Seventeen specimens: Los Indios, Siguanea, and Nueva Gerona, Isle of Pines.

Riccordia ricordi æneoviridis (Palmer and Riley).

Eighteen specimens: Staniard Creek (Andros); Sand Bank, Spencer's Point, Strangers Cay, and Powel Cay (Abaco); Hawksbill Creek (Grand Bahama). (All in the Bahama Islands.)

Compare my previous remarks on this form (Annals Carnegie Museum, 7, 1911, 423-4). I have no new light to throw on the pertinence of the name *bracei*.

Cynanthus latirostris latirostris Swainson.

Five specimens: Tuxpan (Jalisco), Chilpancingo (Guerrero), Cuesta Texquedo (Hidalgo), and Linares (14 miles southwest) (Nuevo Leon), Mexico.

Cynanthus sordidus (Gould).

Six specimens: Taxco (Guerrero) and Chilpancingo (Guerrero), Mexico.

Following Peters, I merge *Phæoptila* with *Cynanthus*.

Lepidopyga cœruleogularis (Gould) and allies.

Compare, in this connection, my previous remarks on this group (1922, 259), also the later discussions by Darlington (1931, 394) and by Griscom (1932, 333-4). My conclusions were, in brief, that Simon was in error in attempting to transfer the name *cœlina* of Bourcier (1856) to the green-throated bird later described by Lawrence under the specific name *luminosa* (1862); and that the alleged type-locality of *cœlina*, "Santa Marta," was probably a mistake, since "we now know that the region in question is inhabited by a form (*lilliæ*) in which not only the throat, but also the entire under parts are glittering blue."

But now comes Darlington with an announcement of the discovery (supported by the capture of two specimens) of the blue-throated species on the edge of the Santa Marta region. He claims that the blue-bellied birds (*lilliæ*) and blue-throated birds are the same and that the difference is probably due to age. Both types were encountered in the same place, he says. Unfortunately he adopts Simon's nomenclature, which I have been at some pains to discredit. What he actually did was to rediscover Bourcier's *cœlina* and validate the ascribed type-locality—contrary to my prediction. But even after actually examining the two specimens in question I cannot believe that *lilliæ* is merely the blue-throated bird in extremely high plumage. I would point out that such extreme variants are unknown in other parts of the range of the blue-throated bird.

Griscom has reviewed the whole case, pointing out Darlington's misuse of names from following Simon. Although I agree that *cœlina* must be a recognizable race of *cœruleogularis*, I cannot follow him in making *lilliæ* also conspecific therewith. The case is most interesting, however, and requires further study in the field and in the laboratory.

Lepidopyga cœruleogularis confinis Griscom.

Eight specimens: Soatatá, Colombia.

The adult males fit Griscom's description in having the throat-gorget glittering violet, while the locality is not far removed from eastern Panama, whence his birds came.

Lepidopyga luminosa luminosa (Lawrence).

Thirty-one specimens: Fundación, Turbaco, Cartagena, Puerto Zapote, Lorica, Monteria, Jaraquiel, Gamarra, Aguachica, and Fonseca, Colombia.

Compare my previous remarks on the name and range of this species (1922, 260). Griscom fully indorses my conclusions (1932a, 333). A trinomial will be necessary, however, since Venezuelan birds prove to be recognizably different.

Lepidopyga luminosa phæochroa, subsp. nov.

Nineteen specimens: Sabana de Mendoza and Santa Elena, Venezuela.

Type, No. 90,557, Collection Carnegie Museum, adult male; Santa Elena, Merida, Venezuela, August 12, 1922; M. A. Carriker, Jr.

Subspecific characters.—Similar to *Lepidopyga luminosa luminosa* (Lawrence) of Colombia, but general coloration much darker, and the back and median rectrices more greenish, less bronzy, in sheen.

Range.—Maracaibo region of Venezuela.

Remarks.—These are readily distinguishable from our Colombian birds by the uniformly darker upperparts. The pileum in particular is darker colored and inclines to bluish. Females show the same characters; they also show considerable individual (or age) variation in the amount of white on the underparts—the same as in typical *luminosa*.

This species is new to the Venezuelan list, and it is no surprise to find that the population of the Maracaibo region is appreciably different. Naturally I supposed at first that our specimens must represent the *Lepidopyga goudoti zuliæ* of Cory (1918, 182). I presumed he had inadvertently referred his specimens to *goudoti*. The Field Museum sent me for examination three of the specimens upon which his description was based (excluding the type), and one additional skin identified as the same form. These four specimens represent no less than three species. Number one (minus the bill) is probably *Chlorostilbon nitens*, number two is the form I am describing herewith, and numbers three and four belong to a species which I do not recognize. The diagnosis of *zuliæ*, just as it appears in print, is penciled on the back of the label of the second skin above listed. Incidentally, this particular bird comes from La Uraca, Tachira, Venezuela, and is obviously the same as is listed by Cory as "La Vaca, Trinidad." The identity of the type itself thus became important to settle. According to E. R. Blake, who examined it at my request, it belongs to the same form as the other two specimens from the same locality—Rio Aurare. These three birds probably represent another species of *Lepidopyga*, for which Cory's name will be available. Further comment on the character and value of his systematic work would be superfluous.

Lepidopyga goudoti (Bourcier).

Seven specimens: Mariquita, Colombia.

Lepidopyga boucardi (Mulsant).

Twelve specimens: Coronado de Terraba, Costa Rica.

Thalurania fannyi fannyi Delattre and Bourcier.

Sixteen specimens: Andagoya, Heights of Caldas, Bitaco Valley, and La Cumbre, Colombia.

Griscom (1932a, 337) refers birds from the higher altitudes (Subtropical Zone) to his new subspecies *subtropicalis*, characterized by generally lighter coloration and shorter tail. There is much variation in the length of the tail and in the extent of its furcation in specimens from the same locality (Bitaco Valley). No. 67,141 might possibly be referable to this new race, since its tail is only 39 mm. long and is forked for 17 mm. Our specimens of *fannyi* all come from the region south of the Rio Atrato, but according to Chapman (1917, 291) and Griscom (*l.c.*) this form ranges northward into eastern Panama. It is represented in Ecuador by a green-backed race, *verticeps*, and in the Magdalena Valley and Santa Marta region of Colombia by

Thalurania colombica colombica (Bourcier).

Thirty-nine specimens: Las Nubes, Onaca, Valparaiso, Don Amo, Cincinnati, Las Taguas, Sierra Nevada de Santa Marta (6000 ft.), Las Vegas, Don Diego, La Palmita, and La Colorada, Colombia; La Azulita, Venezuela.

In his paper already referred to, Griscom points out that the range of the blue-crowned forms (*colombica* and *venusta*) is discontinuous, and that *fannyi*, a form with a green crown, separates them. On this ground (following Berlioz, 1930, 65-69) he proposes to consider *colombica* and *fannyi* conspecies and to alter their names accordingly. I see no need of such treatment. A discontinuous range does not necessarily invalidate the integrity of a species. Even if some of the adult males in our series of *fannyi* do show blue-tinged feathers on the crown, no sufficient evidence of a full connection is yet forthcoming (so far as I am aware). Griscom indeed positively asserts that *fannyi* and *colombica* "intergrade completely," but specifies no intermediates. Where the ranges of the two forms approximate each other the occurrence of hybrids would naturally be expected. To my mind the color of the crown in the adult seems to be a good specific character.

I am unable to distinguish specimens from La Colorada and La Azulita from others from the Santa Marta region. The range of this form is thus shown to invade the eastern slope of the Eastern Andes of Colombia and to reach even the northern slope of the Andes of Merida in Venezuela, where, however, it appears to be rare.

Thalurania colombica venusta (Gould).

Thirty-eight specimens: Pozo Azúl de Pirris, Guapiles, Volcano Turrialba, Cuabre, Rio Sicsola, El Hogar, Miravalles, El Pozo de Terraba, Boruca, and Tucurriqui, Costa Rica.

This is a strongly marked subspecies, and has good distinguishing characters in both sexes. Possibly it should be rated as a full species. I am, however, unable to verify the differences between birds from western and eastern Costa Rica alleged to exist by Griscom (1932a, 336). Immature males are dated in March and April. Several specimens shot in August and September are undergoing postnuptial moult.

Thalurania furcata refulgens Gould.

Five specimens: San Rafael and Mirasol, Venezuela.

This is a slightly differentiated race of *furcata*, with the blue of the interscapulum interrupted and less purplish in tone. Originally ascribed to Trinidad, it is now known to be restricted to the Cumaná region of Venezuela.

Thalurania furcata fissilis von Berlepsch and Hartert.

Two specimens: Rio Mocho and Rio Yuruan, Venezuela.

A female from Rio Mocho I refer here on geographical grounds. The adult male from Rio Yuruan fits the original description. Simon (1921, 303) would call this well-marked race *forficata* of Cabanis and Heine on the basis of Gould's later and fuller description. But I agree with Hartert (1922, 407) that it is not wise to exchange a certainty for an uncertainty.

Thalurania furcata furcata (Gmelin).

Thirty-nine specimens: Cayenne, Tamanoir, and Pied Saut, French Guiana; Obidos, Brazil.

In the coloration of its upperparts this is the darkest of all the races of this species. The under tail-coverts vary somewhat, but in all specimens more or less white is in evidence. Two males from Obidos tend somewhat towards *furcatoides*.

Salvin (1892, 84) remarks that "some Cayenne skins have the tail longer and more deeply forked than others." I note the same diversity in our series; in every case the longer-tailed birds have the rectrices narrowed. I take it that these are fully adult males, and the others younger.

Thalurania furcata subsp.

Three specimens: Manacapurú and Rio Manacapurú, Brazil.

The single adult male does not "fit in" with any of the geographically near forms of this group. Hellmayr (1905, 297) says that "specimens from Manáos in the Vienna Museum (coll. Natterer) belong also to *T. f. furcatoides*." Manacapurú is close to Manáos, but above the mouth of the Rio Negro. But our male specimen is certainly not *furcatoides*, than which its upperparts are much greener, while its under tail-coverts are almost solid steel blue. From *fissilis* it differs in its greener upperparts and in the different shade of blue below. It is apparently not *nigrofasciata*, but it resembles a green-backed example of *simoni*, from which, however, it is at once distinguishable by its uniform and dark-colored under tail-coverts. The bright blue of the abdomen is separated from the green of the throat by an indefinite band of duller blue (cerulean blue of Ridgway, pl. 8).

It is approached by a single male from Mount Duida, Venezuela, which Chapman refers to *orenocensis* of Hellmayr (1921). It has the underparts of the same deep blue (Lyons blue), greenish upperparts (with a few blue feathers intermixed), and blue-black under tail-coverts. It differs from the Mount Duida specimen, however, in having no white feathers on the lower abdomen, and in having the blue more extended on this part (this may possibly be due to age). Two males of *orenocensis* from the type-locality (Nericagua) are much duller blue below, and I suspect that the Mount Duida bird after all may not be the same. The combination of characters shown by the Manacapurú specimen would seem to indicate the existence of a distinct race in the region between the Amazon and the Rio Negro, but I hesitate to describe it on the basis of a single male specimen.

Thalurania furcata furcatoides Gould.

Eight specimens: Pará and Benevides, Brazil.

In color this race is close to *furcata*, except that in the male there is more white on the under tail-coverts, and that the tail is shorter and more deeply forked. Our specimens are topotypical.

Thalurania furcata balzani Simon.

Nine specimens: Santarem, Colonia do Mojuy, Villa Braga, Miritituba, Hyutanahan, and Arimã, Brazil.

Griscom and Greenway (1941, 176) say that specimens from the right (east) bank of the Rio Tapajóz are "inseparable from the Pará series." As a matter of fact, our male specimens from opposite banks of this river are inseparable from each other, but are easily separable from Pará males by the color of the under tail-coverts, which are nearly pure white. Hellmayr (1910, 376) by inference restricts *balzani* to the left bank of the Rio Tapajóz, but this conclusion is clearly in error. However, our single male from Hyutanahan, on the Rio Purús, is appreciably greener above than the Rio Tapajóz birds, and has the blue interscapular band interrupted medially. Hellmayr (*l.c.*) adds that specimens from the Rio Madeira are identical with those from eastern Bolivia. Direct comparison of the Rio Tapajóz series with topotypical examples of *balzani* from the "Yungas de Bolivia" is desirable.

Thalurania furcata nigrofasciata (Gould).

Three specimens: Tonantins, Brazil.

Owing to the loose makeup of these skins, the black breast-band is not obvious at first glance. Although it is in a sense a new character, I am inclined in this case to allow it only racial value and therefore to unite *nigrofasciata* conspecifically with the *furcata* group.

Thalurania furcata simoni Hellmayr.

Five specimens: São Paulo de Olivença, Brazil.

Coming as they do from the south bank of the Amazon, these specimens obviously belong to the same form as was described by Hellmayr from

Teffé, farther down the river on the same side (1907, 77). The form is clearly conspecific with *furcata*, however. Males vary considerably among themselves, from coppery bronze above to decidedly greenish.

Thalurania furcata baeri Hellmayr.

Three specimens: Puerto Suarez and Rio Quiser, Bolivia.

These three skins are undoubtedly referable to *baeri*, which according to Hellmayr (Bulletin British Ornithologists' Club, 21, 1907, 28) is known from Chiquitos, Bolivia. Compare the same author on its subspecific status (1929, 392), also Oliveira Pinto, Revista Museu Paulista, 20, 1936, 66.

Thalurania furcata boliviana Boucard.

Sixty-seven specimens: Buena Vista, Cerro del Amboró, Cerro Hosâne, Santa Cruz de la Sierra, and San José, Bolivia.

Following Hellmayr and other authorities, I had at one time identified this series as *jelskii* of Taczanowski, described from Peru, but more recently Zimmer (1930, 275) has conclusively shown that this name is a synonym of *tschudii* of Gould. Boucard's name *boliviana* will therefore be applicable. I think it will have to stand as a race of *furcata*.

For critical remarks on this whole group compare Berlioz, 1939, 287-290. He calls attention to the disagreement among other authors as to the names and status of the several forms.

Males vary with regard to the color of the under tail-coverts, which are uniform steel blue in some examples, but more or less mixed with white in others. I take it that individuals with dusky feathers on the abdomen are immature.

Panterpe insignis Cabanis and Heine.

Nineteen specimens: Volcano Irazú, Escazú, Volcano Turrialba, and Ujuras de Terraba, Costa Rica.

Damophila juliæ juliæ[3] (Bourcier).

Twenty-six specimens: Cincinnati, Fundación, Turbaco, Gamarra, El Tambor, and Soatatá, Colombia.

The range of this hummingbird in Colombia comprises the western edge of the Santa Marta region, the Magdalena Valley, and the northern littoral. It is a Tropical Zone species, but it appears to be wanting in the Pacific coast region, if one may judge from the lack of records. It reappears in Ecuador in modified form (*feliciana.*)

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[3] The original spelling is *julie*.

Hylocharis cyana rostrata Boucard.

Fifty-one specimens: Buena Vista, Bolivia.

Hylocharis cyana subsp.

One specimen: Cayenne, French Guiana.

A single female example was identified at one time by Oberholser as *viridiventris*, but it is certainly different from our females of that race from elsewhere. It is very dark green above, with no bronzy on the upper tail-coverts, and no distinct grayish tips to the outer rectrices. If not an abnormally colored individual, it probably represents an undescribed race. Von Berlepsch (1908, 267) quotes an old record given by Bonaparte as the only one from Cayenne.

Hylocharis cyana viridiventris von Berlepsch.

Forty-seven specimens: Itaituba, Brazil; El Llagual, Rio Yuruan, El Dorado, La Bomba, El Callao, San German de Upata, Altagracia, Sabana de Mendoza, Santa Elena, Guachi, San Rafael, and El Limon, Venezuela; Buritaca, Don Amo, Don Diego, Dibulla, and Loma Larga, Colombia.

This well-marked race of *H. cyana* has an extensive range, reaching from eastern Brazil to the Santa Marta region of Colombia, but not beyond the latter. In his original description von Berlepsch attributes it to Trinidad, but this must be a mistake. It is a common bird at lower elevations in Venezuela.

Hylocharis sapphirina (Gmelin).

Thirty-three specimens: Upper Arucauá, Santarem, and Itaituba, Brazil; Cayenne and Pied Saut, French Guiana; El Dorado, Venezuela.

This series shows much variation, which seems to be due to age. Fully adult males have chestnut under tail-coverts and tails (for the most part), and green abdomens. Younger birds have the posterior underparts more or less dusky; the blue of the throat is more or less restricted, and the chestnut of the tail and under coverts is not so pronounced. Gray-tipped rectrices are the rule with these younger birds. Females vary in a similar manner.

Hellmayr (1906, 376) says that if this species is divisible it is the southern bird that will require separation. Some later authors recognize it as *latirostris* (Wied), but I have no material serving to show its validity.

Hylocharis eliciæ (Bourcier and Mulsant).

Twelve specimens: Miravalles and Boruca, Costa Rica.

Carriker and de Schauensee (1935, 422) point out peculiarities in their single skin from Guatemala which, if constant, might necessitate the subdivision of this species.

Hylocharis chrysura chrysura (Shaw).

Fifty-six specimens: Puerto Suarez, Santa Cruz de la Sierra, Buena Vista, Pampas de Taperas, and Caiza, Bolivia.

Puerto Suarez skins are geographically nearest to being topotypical; they are not separable from the others. Hartert (1922, 405) insists that *maxwelli*, from Rio Beni, Bolivia, is valid, but both Simon (1921, 312) and Mrs. Naumburg (1930, 151) declare that it is not recognizable. The latter author, however, says that birds from Rio Grande do Sul and Argentina "appear to constitute a separable race," for which Oliveira Pinto (Revista Museu Paulista, 17, 1932, 737) has set up the name *platensis*. In a later paper (*ibid.*, 22, 1937, 262), however, he abandons this name.

Hylocharis oenone (Lesson).

Fifty-three specimens: Las Quiguas, La Azulita, Puerto La Cruz, San Rafael, Mirasol, and El Yaque, Venezuela; Rio Negro, Chinivaque, Palmar, and La Colorada, Colombia.

I can see no sufficient reason to keep this species generically distinct from *Hylocharis*. In the color of the tail it resembles *H. eliciæ*.

Colombian skins should be *longirostris* von Berlepsch, but I cannot see that they have longer bills than the others. Chapman (1926, 295) says that he can find no variations worthy of recognition in a series ranging from Venezuela to the Rio Maranon. Since I agree with him in considering *josephinæ* a distinct species, no trinomial name seems to be necessary. Carriker (1935a, 346) insists that *intermedia* of Hartert, 1898, from the middle Maranon, is a valid race, but according to Zimmer (in *litt.*) the characters on which it rests are variable and not dependable.

The range of this species lies entirely east of the Andes in Colombia and Ecuador, but in Venezuela it occupies an apparently disconnected strip on the northern slope of the coast mountains. I find no records for the Orinoco Valley or the Merida region.

Immature males have the blue of the throat restricted and the abdomen grayish white rather than greenish. Adult males vary individually with regard to the color of the tail and of the upper and under tail-coverts. Some have these parts decidedly bronzy, and others more coppery.

Hylocharis josephinæ (Bourcier and Mulsant).

Thirty-four specimens: Buena Vista, Cerro del Amboró, Cerro Hosáne, and San José, Bolivia.

Zimmer (1930, 276) allows but two valid "races" of *oenone*, the second being *josephinæ*. But I agree with Chapman in considering these two forms specifically distinct. Carriker (1935, 345) has described a supposed race of *josephinæ* (*peruviana*) from Moyobamba, Peru, in which region he claims a race (*intermedia*) of *oenone* also occurs. Mr. Zimmer writes me, however, that in his opinion *peruviana* is a variant of *josephinæ*. The question will bear further investigation. (Compare also Hartert, 1922, 406.)

Hylocharis grayi meridionalis (Simon).

Three specimens: "Quito," Ecuador (Söderstrom).

Chapman ignores this race in his Ecuador report. The above specimens differ from Colombian birds precisely as Simon claims, and they are beyond doubt worthy of subspecific segregation.

Hylocharis grayi grayi (Delattre and Bourcier).

Six specimens: Caldas, Heights of Caldas, and La Cumbre, Colombia.

These are brighter-colored than those from Ecuador, and their crowns are more violaceous. Ridgway (1911, 384) is mistaken in asserting that in this species the sexes are alike.

Hylocharis leucotis leucotis (Vieillot).

Fourteen specimens: Taxco (Guerrero), Chilpancingo (Guerrero), San Bartolo (Mexico), Contreras (Mexico), Desierto de Leones (Distrito Federal), and La Joya (Vera Cruz), Mexico.

Hylocharis leucotis borealis Griscom.

One specimen: Cave Creek, Arizona.

Hylocharis xantusi (Lawrence).

Ten specimens: San José del Cabo, Santa Anita, Sierra de la Laguna, and San José del Rancho, Lower California.

Polytmus guainumbi guainumbi (Pallas).

Two specimens: El Llagual, Venezuela; Demonty, Brazil.

The specimen from El Llagual is a young bird in juvenal dress; it is wholly rusty buff below, fading to white posteriorly. Some years ago it was identified by Oberholser as *chrysobronchos*—a name now considered a synonym of *guainumbi*.

Polytmus guainumbi thaumantias (Linnæus).

Thirty-five specimens: Buena Vista, Bolivia.

According to Hellmayr (1929, 394), Bolivian and Brazilian birds are alike and even may be the same as those from Guiana. But Mrs. Naumburg (1930, 158) says that the latter are easily distinguishable.

This fine series shows all the various stages from the young bird to the adult. There is much variation in the color of the back; some individuals are bronzy, and others incline to greenish. The color of the rectrices also varies from blue to green.

Smaragdites theresiæ theresiæ (Da Silva).

Six specimens: Cayenne, French Guiana; Benevides and Villa Braga, Brazil.

On the change of the generic name from *Psilomycter* see Simon, 1921, 316.

Two Brazilian males have the tail decidedly tinged with blue. In the Cayenne male it is pure shining green.

Smaragdites theresiæ leucorrhous (Sclater and Salvin).

One specimen: Arimã, Brazil.

According to Hellmayr, birds from the Rio Madeira are typical *theresiæ*, but farther west, on the Rio Purús, this form takes its place.

Leucippus chionogaster hypoleucus (Gould).

Sixty-five specimens: Santa Cruz de la Sierra, Buena Vista (including Rio Dolores and Rio Surutu), Caiza, Yacuiba, Cerro del Amboró, Cerro Hosáne, Cafeces, Samaipata, Cochabamba, and Comarapa, Bolivia.

Ridgway (1911, 305, note) would exclude this and other species from *Leucippus*, but after comparison with *L. fallax* I see no special reason for separating them generically. According to Zimmer (1930, 277), Peruvian specimens (typical *chionogaster*) differ from Bolivian birds by having the flanks more broadly and strongly green. However, not one of the above series has a bill as long as is called for in Gould's description of *hypoleucus* (28 mm.). Considerable variation in the extent of the white area on the tail is in evidence, so that I attach no importance to this as a racial character, as suggested by Carriker (1935a, 317). The few specimens with scattered cinnamon rufous feathers on the throat I take to be immature males.

Leucippus fallax fallax (Bourcier and Mulsant).

Twelve specimens: Tocuyo, Venezuela; Rio Hacha, Colombia.

This is properly a species of the Arid Tropical Zone of northern Venezuela. It is known to range west to the Goajira Peninsula in Colombia, but it is very doubtful if it reaches French Guiana towards the east. The Margarita Island bird has been separated on certain slight differences in coloration, but whether these would hold in series comparable for season is an open question. Our Rio Hacha birds are noticeably duller-colored than those from Tocuyo, but this dullness is most likely due to the fact that they were taken in May instead of in January.

Talaphorus hypostictus peruvianus (Simon).

Two specimens: Cerro del Amboró and Samaipata, Bolivia.

These agree well with a specimen from Rio Seco, Peru (American Museum).

Genus AMAZILIA Lesson.

I follow Peters in including under this generic name the species placed by authors in *Agyrtrina*, *Saucerottia*, *Uranomitra*, *Polyerata*, and *Arenella*. These groups are admittedly not trenchantly defined, and it seems to me that maintaining them serves no good purpose.

Amazilia chionopectus chionopectus (Gould).

Five specimens: Carenage, Heights of Aripo, and Poole, Trinidad; Cumanacoa, Venezuela.

Amazilia chionopectus whitelyi (Boucard).

Sixteen specimens: Maripa, El Llagual, Rio Yuruan, El Dorado, La Bomba, El Peru Mine, and Altagracia, Venezuela.

This is merely a slightly differentiated form of true *chionopectus* of Trinidad. Its bill is slightly smaller, and its underparts are whiter, since the green color of the sides is more restricted. I am unable to appreciate the alleged differences in the color of the tail; there is considerable variation, however, in this respect in the present series.

Bangs and Penard (1918, 62) transfer the name *brevirostris* of Lesson to the present form, and set up a new name for the form usually called *brevirostris*. But I agree with Simon (1921, 328-9) that this shift is unnecessary. Bangs and Penard's remarks were based on certain specimens from Paramaribo which I have been privileged to examine. Whatever these may be, they have certainly nothing to do with *A. chionopectus*. On the label of one, Peters has a note suggesting affinity to *A. viridiceps* of Ecuador.

Amazilia chionopectus orienticola, subsp. nov.

Type (and only specimen), No. 62,985, Collection Carnegie Museum, adult female; Mana, French Guiana, August 18, 1917; Samuel M. Klages.

Subspecific characters.—Similar to *Amazilia chionopectus chionopectus* of Trinidad and northeastern Venezuela, but upperparts in general, and the tail in particular, much more bronzy, as well as the spots on the sides of the body; bill markedly shorter. Wing, 50; tail, 29; bill, 15.

Range.—French Guiana.

Remarks.—Unfortunately this form is represented by a single specimen only, but its characters are so well marked that I have little hesitation in considering it to represent a new race. Although sexed as a female, it is brightly colored throughout, and the determination may be in error. According to von Berlepsch (1908, 266), there is a specimen of *A. chionopectus* from French Guiana in the Paris Museum, where, however, Hellmayr searched for it in vain.

Amazilia leucogaster (Gmelin).

Nine specimens: Cayenne, French Guiana.

Three specimens from Bahia (American Museum) I am unable to distinguish in any way from the above series; for this reason I consider *bahiæ* of Hartert as a synonym.

Amazilia milleri (Bourcier).

Two specimens: Palmar, Colombia; Obidos, Brazil.

Hellmayr (1929, 396, note) unites this form with *versicolor* ("*affinis*") and *nitidifrons* as conspecies, but I cannot agree with this disposition. Griscom and Greenway (1941, 171) consider that their specimens from Obidos belong to a form which they leave unnamed, because of the "hopeless nomenclatural complications" in which Simon involved this group. They add that "Hellmayr's note on his female from Obidos [in Novitates Zoologicae, 14, 1907, 33] clearly describes the present subspecies," and that "true *milleri* (Bourcier) ranges from the Rio Negro northwestward and northward to Colombia and Venezuela, where further racial variation may prove to take place." But Hellmayr (*l.c.*) states that, except for being slightly smaller, his specimen from Obidos agrees with females from the Orinoco, and our specimen from the same place (also a female) is identical with one from eastern Colombia, except that its bill is one mm. shorter. Inferences drawn from such scanty material are always open to revision, and I have seen no specimens fitting Griscom and Greenway's description of "true *milleri*;" nevertheless, I have received the impression that only one form is involved. Gould does not state the source of the specimen which he portrays, but his figure fits our specimens, and Bourcier's original description is also in agreement. Need for examination of the type-specimen (if extant) and of authentic topotypical material is strongly indicated.

Amazilia hollandi (Todd).

Twelve specimens: El Dorado, El Callao, El Peru Mine, and San German de Upata, Venezuela.

Description.—Above dark green; crown glittering dark blue, becoming paler blue on the sides of the head and throat; wings dark purple; tail dull green, with a dark subterminal band and grayish tip; throat, middle of the breast and abdomen, and under tail-coverts white, the last centered with gray; sides of the breast spangled with glittering blue; sides of the abdomen dull green; "feet black; bill black, flesh-color below." Wing (type), 51; tail, 30; bill, 17.

This very distinct form has an apparently restricted range, confined (so far as known) to the headwaters of the Rio Cuyuni, in extreme eastern Venezuela, adjoining the British Guiana frontier. It is most nearly related to *A. milleri*, from which it differs conspicuously in its differently colored crown and sides of the breast.

Amazilia versicolor nitidifrons (Gould).

One specimen: Benevides, Brazil.

Griscom and Greenway (1941, 170) have inadvertently overlooked this specimen. The female they list from Santarem, however, is *A. fimbriata nigricauda.*

Compare Hellmayr, 1929, 395, who considers that intergradation between *versicolor* and *nitidifrons* has been demonstrated.

Amazilia fimbriata nigricauda (Elliot).

Two specimens: Santarem and Itaituba, Brazil.

Griscom and Greenway (1941, 170) list one of these under *A. versicolor nitidifrons* (as already said), and omit the second specimen entirely.

These specimens, compared with others from Bahia, Goyaz, and Matto Grosso (Collection American Museum), have less purely white under tail-coverts and darker, less yellowish green throats and breasts. No. 77,461, ♂, agrees well with the description of *nigricauda;* No. 71,850, ♀, not so well. They confirm Hellmayr's statement (1929, 325) that "the few specimens seen by me from the Tapajóz River appear to be intermediate between *nigricauda* and *fimbriata.*"

Amazilia fimbriata fimbriata (Gmelin).

Seventeen specimens: Cayenne and Mana, French Guiana; Manacapurú, Brazil.

After suffering several nomenclatural vicissitudes, this species is now called *fimbriata,* which according to von Berlepsch (1908, 266) is the earliest pertinent name. In our topotypical series from French Guiana the upper mandible is dark-colored (in the skin), and the sheen of the median rectrices is decidedly greenish. The sexes are similar, although the females average duller-colored. Two specimens from Manacapurú, on the north bank of the Amazon, seem to have more white below than the French Guiana birds, but I refer them to *fimbriata* provisionally.

Amazilia fimbriata maculicauda (Gould).

Ten specimens: La Bomba and San German de Upata, Venezuela.

Clearly these are not the same as typical *fimbriata* from French Guiana. They are greener above, and duller, without bronzy reflections; the upper mandible is decidedly light-colored ("reddish flesh-color"); and the under tail-coverts tend to be whiter. They agree perfectly with two specimens from British Guiana (Annai) in the collection of the American Museum—as indeed they should since the localities are so close together. On geographical grounds Elliot's name *nitidicauda* (1878) would apply to this form, although the description does not quite fit. However, there is an earlier pertinent name in *Thaumatias maculicauda* of Gould, 1861. Simon rejects this name on the ground that it is based on a variation due to age—which of course is no reason at all. Griscom and Greenway (1941, 173) reject *nitidicauda* because its characters "have no geographic constancy." They compared a "series of 36 topotypes from Surinam" with eight specimens from British Guiana. It appears, therefore, that birds from British and Dutch Guiana are alike, but collectively they differ from French Guiana birds as already pointed out. The significant point to remember in this connection is that Cayenne (not Surinam) is the designated type-locality for *Trochilus fimbriatus* Gmelin. The median rectrices of *maculicauda* are greenish, as in typical *fimbriata*.

Amazilia fimbriata apicalis (Gould).

Ten specimens: Ciudad Bolivar and San Felix, Venezuela.

Comparison with a series from the type-locality of *fimbriata* (French Guiana) at once shows that Orinoco specimens are not quite the same; they tend somewhat toward those coming from the north coast of Venezuela. In the Guiana series the upper mandible is dark-colored (in the skin), and the median rectrices are greenish. In the Orinoco birds the upper mandible is usually light-colored (reddish in life ?), the rectrices are as a rule bronzy, and the underparts are not so "solidly" green. Eight specimens from the Orinoco in the Rothschild Collection agree in general with ours, although they show some variation in the color of the bill and of the upperparts. Some are more greenish above, and others more bronzy.

Von Berlepsch and Hartert (1902, 83) listed these specimens as *Agyrtria albiventris* (Lesson). Now, there is a "Bogotá" skin of a hummingbird in the Rothschild Collection (No. 479,907, Collection American Museum) which is marked, apparently by Hartert himself, as "*terpna*," also "agrees with type of *apicalis*." It is absolutely identical with our two females from San Felix. Chapman (1917, 286) records a specimen of *A.* "*viridissima*" from Villavicencio, at the eastern foot of the Eastern Andes in Colombia. He did not allocate this specimen subspecifically, but after examination I venture to place it with the present race, for which *apicalis* appears to be the proper name. *Agyrtria terpna* of Heine, 1863, is a synonym. This form is thus shown to range in the Orinoco Valley in Venezuela west to the base of the Eastern Andes in Colombia.

Amazilia fimbriata elegantissima, subsp. nov.

Twenty-eight specimens: San Esteban, El Trompillo, Sierra de Carabobo, Puerto La Cruz, and Santa Lucia, Venezuela.

Type, No. 104,914, Collection Carnegie Museum, adult male; Santa Lucia, Miranda, Venezuela, August 12, 1929; E. G. and M. L. Holt.

Subspecific characters.—Similar to *Amazilia fimbriata fimbriata* (Gmelin) of French Guiana, but bill above lighter-colored and upper tail-coverts and median rectrices decidedly coppery bronze (instead of dark green).

Range.—Northern Venezuela, in the States of Miranda, Aragua, and Carabobo.

Remarks.—This is the most richly colored of the northern races of this species. It differs from *apicalis* in its more "solid" green underparts (with less white in evidence) and its coppery (rather than bronzy) median rectrices. From *maculicauda* it is easily distinguished by its uniformly more bronzy (less greenish) upper parts and by the different sheen of the median rectrices.

It is odd that (so far as I am aware) *Amazilia fimbriata* has not heretofore been recorded from northern Venezuela, and it is no surprise to find that the population of that section belongs to an undescribed race, set off from its conspecific allies by characters that, although subject to individual variation, hold good in the ample series at hand.

Amazilia franciæ (Bourcier and Mulsant).

Sixteen specimens: Heights of Caldas, Bitaco Valley, La Cumbre, and Mariquita, Colombia.

This species is the type of *Uranomitra* Reichenbach, which Peters (I think rightly) merges with *Amazilia*. It is a Subtropical Zone form, peculiar to the Central and Western Andes in Colombia.

Amazilia candida candida (Bourcier and Mulsant).

Five specimens: Manatee Lagoon, British Honduras; Las Penitas and Catacombas, Honduras.

The female specimen from Manatee Lagoon has obvious cinnamomeous tips to the rectrices and cinnamomeous centers to the under tail-coverts.

Amazilia saucerottei saucerottei[4] (Delattre and Bourcier).

Eight specimens: Caldas and La Cumbre, Colombia.

Amazilia saucerottei warscewiczi (Cabanis and Heine).

Thirty-eight specimens: Bonda, Don Amo, Cincinnati, Agua Dulce, Minca, Mamatoco, La Tigrera, Fundación, Dibulla, Turbaco, Aguachica, El Cauca, Pueblo Nuevo, and Ocaña, Colombia.

I have already (1922, 264-6) discussed this series and the nomenclatural questions involved, and so need not repeat. This hummingbird is a Tropical Zone form and is a common species in the Santa Marta region of Colombia, whence it ranges to the lower and middle Magdalena Valley. Its occurrence at Ocaña, on the eastern slope of the Eastern Andes, would suggest that it crosses the mountains to intergrade with the Venezuelan race *braccata*. But as yet there is no indication as to just where its range to the west meets that of typical *saucerottei*.

Amazilia saucerottei braccata (Heine).

Thirty-two specimens: Sabana de Mendoza, Motatan, Guamito, and Tabay, Venezuela.

This form is barely separable from *warscewiczi* by its slightly lighter, more yellowish green, general coloration. The alleged difference in size is inconsequential. If the labels were removed, it would be hard to discriminate the two races; accordingly, I accept the present one with due reservations. However, both *warscewiczi* and *braccata* are easily distinguished from true *saucerottei* of western Colombia by the lighter blue color of the under tail-coverts, which are narrowly fringed with gray.

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[4] The original spelling is *saucerrottei*.

Amazilia hoffmanni (Cabanis and Heine).

Thirty-six specimens: Escazú, San Miguel, Bebedero, Miravalles, and Esparta, Costa Rica.

On the correct name of this form compare Hellmayr, Novitates Zoologicae, 20, 1913, 249, also the reference under *A. saucerottei warscewiczi*, *antea*. It will have to bear the name *hoffmanni* for the present, or until the true application of Gould's term *caligatus* can be determined by an examination of the type (if extant).

Comparison of this series with the several South American races of *A. saucerottei* convinces me that the Costa Rican form known by the above name ought to be ranked as a distinct species. There is first the matter of its separated range. I have searched in vain for records to substantiate its presence in Panama, or that of any member of this group. Even in southwestern Costa Rica it is unknown. In coloration it is constantly although not conspicuously different from *saucerottei*, since it is uniformly more brightly colored and has the rump decidedly purplish. The main differences, however, are the decidedly longer wings (reaching almost or quite to the end of the tail in well-made skins) and the much broader rectrices. In *saucerottei* the wings are relatively much shorter, falling far short of the end of the tail, and the rectrices are obviously narrower. I consider these differences to be specific rather than racial.

Amazilia viridigaster (Bourcier).

Ten specimens: Palmar and La Colorada, Colombia.

Like those listed by Chapman (1917, 288), all these come from the eastern slope of the Eastern Andes. Although Simon (1921, 120, 335) recognizes *iodura* Reichenbach as a race of *viridigaster*, he ascribes to it a range which overlaps the range of the latter. I have examined a male specimen supposed to be *iodura* which is in the collection of the Field Museum, and I consider it specifically distinct from *viridigaster*. Simon also describes a new race, which he calls *melanura*, on the basis of a "Bogotá" skin. Chapman (1929, 14) thinks that *melanura* is based on an individual variation—a supposition which is more than probable. Under these circumstances I think that a binomial name for the present form will suffice.

Amazilia edward[i] edward[i] (Delattre and Bourcier).

One specimen: Capira, Panama.

Amazilia niveoventer (Gould).

Twenty-three specimens: Boruca, Costa Rica.

Many of these have the tips of the rectrices distinctly purple. I do not know the significance of this character.

Amazilia tobaci erythronota (Lesson).

Twenty-three specimens: Carenage, Heights of Orepouche, and Chacachacare Island, Trinidad; San Felix, Upata, El Callao, El Dorado, El Peru Mine, and San German de Upata, Venezuela.

Females are rather duller below than males and have the under tail-coverts grayish, more brownish mesially. However, one bird sexed as a female has them cinnamon rufous.

Von Berlepsch and Hartert (1902, 84) have set up the name *caurensis* for the birds of the Orinoco and Caura rivers. I have seen no specimens from this latter region, but in view of the fact that the present series, coming from the region to the eastward of the Caura, includes some specimens more or less fitting the description of *caurensis*, together with others quite indistinguishable from the average Trinidad bird, I doubt whether such a distinction can be maintained. Females from the two respective regions are quite alike, and males practically so, although the under tail-coverts are apparently more often purplish vinaceous in the Trinidad examples.

Amazilia tobaci aliciæ Richmond.

Six specimens: San Rafael, Cumanacoa, and Mirasol, Venezuela.

Compared with one male and four females from Margarita Island (Collection Field Museum), these mainland birds differ in having the pileum, upperparts generally, and wing-coverts more greenish, less bronzy. With a larger series available they might possibly be separated on this basis. The underparts in the male are darker, less yellowish green. In all specimens but one the under tail-coverts show a pronounced rufous coppery coloration.

Amazilia tobaci feliciæ (Lesson).

Twenty-nine specimens: La Cumbre de Valencia, El Trompillo, Sierra de Carabobo, Pie del Cerro, Puerto La Cruz, Mariches, Petare, and Santa Lucia, Venezuela.

The differences between this race and *erythronota* of Trinidad are subtle and not any too constant. Lesson's description is brief and unsatisfactory. He supposed that his bird came from Brazil—clearly a mistake. Hellmayr and von Seilern (1912, 139) substitute therefor the "north coast of Venezuela," but this is not sufficiently explicit. Our series from the north coast exhibits a variation from west to east, affecting the color of the under tail-coverts. In the western birds these are bronzy or greenish with paler edgings, but towards the east the tendency to coppery or rufous color becomes more pronounced and reaches a maximum in specimens from Cumanacoa, which I refer to *aliciæ*. In order to properly validate *feliciæ*, I propose to further restrict the type-locality to the region of Caracas, from which Lesson's type may actually have come.

Males are readily distinguishable from females by the darker, more "solid" green of the underparts, with less gray edgings to the feathers.

Amazilia tobaci monticola (Todd).

Ten specimens: Tocuyo and Guarico, Venezuela.

The acquisition of the present series, taken at a higher elevation than this species had previously been reported in Venezuela, led to the discrimination of a Subtropical Zone race in this region. Compared with specimens from La Guaira, etc., in the U. S. National Museum, the Guarico birds differ in being uniformly darker, less bronzy green, in general coloration, with the crown and back less glittering. After comparison with our series, Wetmore (1939, 203) refers two males from El Sombrero, some seventy-odd miles south of Caracas, and at an elevation of only four hundred feet, to this race. I cannot understand this, because our specimens from the region southeast of Lake Valencia (El Trompillo and Sierra de Carabobo) are clearly *feliciæ*. Oddly enough, Carriker failed to secure additional specimens of *monticola* anywhere else in the Andes of Merida. The single example from Tocuyo is somewhat intermediate between *monticola* and *feliciæ*. The color of the under tail-coverts is subject to so much variation that it is valueless as a distinguishing character, just as Salvin claims (1892, 226).

Amazilia tzacatl[i] jucunda (Heine).

Seven specimens: El Tambo, Andagoya, and Cordoba, Colombia.

"On general faunal principles" Chapman (1917, 288) would "limit the range of *jucunda* in Colombia to that part of the Pacific coast from the

San Juan river southward." The above-listed specimens came from this region, but they are scarcely distinguishable from the series from other parts of Colombia. The females are perhaps a little paler below.

Amazilia tzacatl[i] tzacatl[i] (De la Llave).

Eighty-nine specimens: Bonda, Buritaca, Don Amo, Fundación, Mamatoco, Don Diego, Dibulla, Turbaco, Puerto Zapote, Lorica, Aguachica, El Tambor, Murindó, Quibdó, and Fonseca, Colombia; Tocuyo, Sabana de Mendoza, Motatan, Tabay, and La Azulita, Venezuela; Juan Viñas, Pozo Azúl de Pirris, Escazú, Guapiles, El Hogar, Miravalles, Esparta, and Boruca, Costa Rica; Manatee Lagoon, Manatee District, El Cayo, Duck Run, All Pines, and Freetown, British Honduras.

This common and well-known species inhabits the Tropical Zone from Mexico south to western Ecuador and east to the Maracaibo region of Venezuela. Geographical variation in this large area is so little in evidence that only the birds from the extreme southern part of the range are recognizably distinct. I fail to distinguish by any constant characters our Venezuelan specimens from others from Central America.

Amazilia violiceps violiceps (Gould).

Three specimens: Chilpancingo (Guerrero), Mexico.

In the male the crown is bright blue; in the female it is dull blue or greenish ("the so-called *viridifrons* Elliot"). Compare Griscom, 1934, 376-8.

Amazilia cyanocephala guatemalensis (Gould).

Eleven specimens: Manatee Lagoon, All Pines, and Freetown, British Honduras; Catacombas, Honduras.

Griscom (1932, 203) remarks certain slight peculiarities of coloration in British Honduras specimens, but after comparing them with a small series from Guatemala, I can find no differences.

Amazilia amazilia amazilia (Lesson).

Two specimens: Lima, Peru.

Amazilia yucatanensis yucatanensis (Cabot).

One specimen: Manatee Lagoon, British Honduras.

Amazilia yucatanensis chalconota Oberholser.

Five specimens: Brownsville, Texas; Saltillo (Coahuila), Rio Corona (Tamaulipas), and Tamazunchale (San Luis Potosi), Mexico.

The specimen from the last-named locality has been identified by Sutton as *cerviniventris*, but I refer it to *chalconota* instead, since it resembles the specimen from Saltillo—as on geographical grounds it should do.

Amazilia beryllina viola Miller.

Four specimens: Taxco (Guerrero) and Chilpancingo (Guerrero), Mexico.

Amazilia rutila rutila (Delattre).

Fifteen specimens: Bebedero, Miravalles, and Esparta, Costa Rica; Cofradia, Honduras; Coyuca (Guerrero) and Acapulco (Guerrero), Mexico.

Some specimens are more bronzy, and others more greenish. Those from Miravalles vary, but none is like the type of *A. bangsi* Ridgway. Bangs claims that the example on which this name is based is a hybrid between *rutila* and *tzacatli.*

Amazilia amabilis amabilis (Gould).

Seventeen specimens: El Tambor, Soatatá, and Murindó, Colombia.

I agree with Peters in reducing *Polyerata* to a subgenus of *Amazilia.*

This species was described from Colombia, and Gould's description of the color of the tail, "greenish bronze," would apply better to the Colombian birds. In these the tail tends to be bronzy or greenish rather than purplish (as in those from Costa Rica), and the purplish sheen on the rump and upper tail-coverts is scarcely in evidence; moreover, the upperparts in general are more greenish, less bronzy. Two specimens in the collection of the American Museum (Puerto Valdivia and Alto Bonito, Colombia) agree with our series in this respect. Our specimens from El Tambor confirm other reports tending to show that this form ascends the Magdalena Valley almost to the latitude of Bogotá, and that it is thus not so restricted in range as Chapman implies.

Amazilia amabilis costaricensis, subsp. nov.

Nine specimens: Guapiles and El Hogar, Costa Rica.

Type, No. 26,676, Collection Carnegie Museum, adult male; El Hogar, Costa Rica, December 10, 1905; M. A. Carriker, Jr.

Subspecific characters.—Similar to *Amazilia amabilis amabilis* (Gould) of Colombia, but upperparts in general more bronzy, less greenish; and tail (median rectrices), upper tail-coverts, and rump with a decided purplish (instead of greenish) sheen.

Range.—Nicaragua (Caribbean slope) to Panama.

Remarks.—Ridgway (1911, 523) remarked no variation in this species; his description, however, is clearly based on Central American specimens. The differences between these and Colombian examples are too obvious and constant to be disregarded. These differences hold in both sexes but are better pronounced in the male. I have examined two skins in the Elliot Collection from "New Granada" which agree perfectly with our Costa Rican birds; I judge that they probably came from Panama.

Amazilia decora (Salvin).

Nineteen specimens: Pozo Azúl de Pirris, El Pozo de Terraba, and Boruca, Costa Rica.

Notwithstanding the fact that the characters separating this form from *amabilis* are not conspicuous, they are constant and well defined; accordingly I am inclined to maintain the two as distinct species.

Amazilia rosenbergi (Boucard).

Twenty specimens: Quibdó, El Tambo, Andagoya, Potedó, and Malagita, Colombia.

This is a very distinct species, the male of which entirely lacks a glittering crown. It is confined to the Tropical Zone of the Pacific coast in Colombia, in which section its range appears to inosculate with that of *amabilis;* although so far as I am aware, the two species have not been actually found together.

Microchera parvirostris (Lawrence).

Three specimens: Volcano Turrialba and Carrillo, Costa Rica.

Eupherusa egregia Sclater and Salvin.

Five specimens: Juan Viñas and Ujuras de Terraba, Costa Rica.

Eupherusa eximia eximia (Delattre).

Seven specimens: Cockscomb Mountains, British Honduras.

A common species in Guatemala, but this is I think the first record for British Honduras.

Eupherusa nigriventris Lawrence.

One specimen: La Hondura, Costa Rica.

Chalybura buffoni buffoni (Lesson).

In describing his new species *Trochilus buffonii* in 1832, Lesson guessed that it came from Brazil, but his guess was a bad one. Not until 1854, when Gould figured the species in his "Monograph of the Trochilidae" (vol. 2, pl. 89), did it come out in print that the sources of the specimens reaching Europe were "Bogotá," Colombia, and Caracas, Venezuela. Hellmayr and von Seilern (1912, 140) inferentially substitute "Bogotá" as the type-locality, stating that specimens purporting to come from that region have the bluish black tail called for in Lesson's description and plate. Chapman (1917, 293) considers specimens from the Magdalena Valley "essentially topotypical," although he is at pains to point out that their tails are more bronzy than those of specimens from the Pacific coast. And now come Bangs and Barbour (1922, 204), who describe under the name *micans* this very bird with the bluish black tail and give its range as western Colombia and eastern Panama. These authors also refer to the bronzy tail of Magadalena Valley specimens.

It is significant that bronzy tails are the rule in the only specimens surely known to have been taken in the Magdalena Valley. So-called "Bogotá" skins with uniform bluish black tails (of which we have two examples), therefore, must have had their origin in some other region—western Colombia or eastern Panama. Through the courtesy of the authorities of the Museum of Comparative Zoölogy I have had the privilege of examining and comparing six specimens from the type-series of *micans*. These obviously represent a form distinct from both that of the Magdalena Valley and that of the coast region of Venezuela. They differ not only in having the tails more solidly bluish black, as the describers claim, but also in the color of the underparts, which have a decided bluish sheen (benzol green of Ridgway)—much more marked than is shown by any of our specimens from other regions. Also, the underparts have the gray feather-edgings wider and more prominent. As these are precisely the characters emphasized in the original description by Lesson, I do not see how we can avoid using his name *buffoni* for this form in place of *micans* Bangs and Barbour.[5] This procedure leaves the Magdalena Valley bird without a name. I propose to call it

Chalybura buffoni interior, subsp. nov.

Fifteen specimens: El Cauca and El Tambor, Colombia; Santa Elena and Guachi, Venezuela.

Type, No. 90,529, Collection Carnegie Museum, adult male; Santa Elena, Zulia, Venezuela, August 12, 1922; M. A. Carriker, Jr.

Subspecific characters.—Similar to *Chalybura buffoni æneicauda* Lawrence, but smaller; the upperparts with little bronzy sheen; and the underparts darker, more bluish green (vivid green of Ridgway).

Range.—Magdalena Valley (middle and upper) of Colombia and the region south of Lake Maracaibo in western Venezuela.

Remarks.—Ten adult males of the present form average: wing, 67.6; tail, 44; bill, 25. The same number of *æneicauda:* wing, 71.7; tail, 46.4; bill, 25.8. They differ from birds from eastern Panama, as already pointed out, in the more bronzy hue of the tail, the more greenish sheen of the underparts, and the narrower pale feather-edgings. Lesson's description and plate fit the Panama bird better than they do any other, and there is every reason to believe that his type-specimen could not have come from the vicinity of Bogotá. According to present information the range of this interior race is discontinuous, but in all probability it is actually not so. There is doubtless a connection somewhere across or around the Eastern Andes.

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[5] It will be noted that my conclusion here is at variance with the position I took in the case of *Trogon sulphureus* Spix (*cf.* Proceedings Biological Society of Washington, now in press). The two cases are not exactly parallel, however. In the Trogon case there is a discrepancy between Spix's figure and type-specimen on the one hand, and his description and assigned type-locality on the other; of the two alternatives I accept the latter as correct. In the case of *Chalybura buffoni* my contention is that Lesson's figure and description are sufficiently accurate and diagnostic, and should be accepted, but I cannot accept Hellmayr and von Seilern's designation of a type-locality, since we now know that examples fitting Lesson's description certainly do not come from Bogotá. It is of course well known that so-called "Bogotá" skins may have come from any part of Colombia.

Chalybura buffoni æneicauda Lawrence.

Fifty-six specimens: Las Quiguas, El Hacha, Aroa, Lagunita de Aroa, El Trompillo, Sierra de Carabobo, Puerto La Cruz, El Limon, Pie del Cerro, Mariches, and El Encatado, Venezuela; Cacagualito, Bonda, Don Amo, Don Diego, Cincinnati, Mamatoco, La Tigrera, Minca, and Dibulla, Colombia.

Since my previous remarks on this form (1922, 267) I have altered my views considerably, as already said, but not as regards the validity of *æneicauda*. The color of the tail varies through wide limits, from almost black in one example to dark green glossed with steel blue, and even coppery purple. Specimens from the Santa Marta region of Colombia agree with those from northern Venezuela in size and coloration. In adults the underparts (typically) are nearest Scheele's green of Ridgway, but brighter. A male from El Hacha approaches *interior* in the darker green of its underparts, but another specimen from a point higher up (Aroa) is definitely *æneicauda*. These come from the region where intergrades between the two forms might be expected to occur. The present race does not seem to range eastward beyond the State of Miranda. A series in fine fresh plumage (May-June) from El Trompillo and the Sierra de Carabobo show the extreme development of the bronzy lustre. Some specimens show a decided coppery color on the chin and submaxillaries. Younger males have the green of the underparts less "solid."

Chalybura cæruleogaster (Gould).

Two specimens: La Colorada, Colombia.

Two females from this locality are referred here on geographic grounds; they are noticeably grayer below than females of *æneicauda*.

Chalybura urochrysa urochrysa (Gould).

Sixteen specimens: Quibdó, El Tambo, Potedó, Malagita, and Cordoba, Colombia.

Griscom (American Museum Novitates No. 293, 1928, 3), in describing a race from Tacarcuna, eastern Panama, insists that *urochrysa*, *isauræ*, and his intermediate form *incognita* must be either distinct species or representative subspecies. So for the present I use a trinomial name.

Chalybura melanorrhoa Salvin.

Twenty-three specimens: Guapiles, Cuabre, Rio Sicsola, and El Hogar, Costa Rica.

On the evidence of two specimens from the Almirante region of western Panama which show intermediate characters, Griscom (Auk, 50, 1933, 301) would reduce *melanorrhoa* to a subspecies of *isauræ.*

Lampornis hemileucus (Salvin).

Two specimens: La Hondura and Juan Viñas, Costa Rica.

Lampornis calolæma (Salvin).

Ten specimens: Escazú, La Hondura, and Juan Viñas, Costa Rica.

Females of this species closely resemble those of *L. cinereicauda*, and where both species occur together, as at Escazú, their identification is not easy.

Lampornis cinereicauda (Lawrence).

Twelve specimens: Escazú and Ujuras de Terraba, Costa Rica.

Bangs (Proceedings Biological Society of Washington, 19, 1906, 106) says that out of sixty-three males of this form examined, thirty-three had the throat violet and white mixed. But only three (of five) of the above show on close inspection a trace of violet, concealed by the white feathers, along the lower edge of the white throat.

Lampornis clemenciæ clemenciæ (Lesson).

Ten specimens: La Venta (Distrito Federal), San Bartolo (Distrito Federal), and Contreras (Distrito Federal), Mexico.

Lampornis clemenciæ bessophilus (Oberholser).

Eighteen specimens: Pine Canyon and Juniper Canyon, Texas; Chiricahua Mountains, Carr Canyon, and Cave Creek, Arizona.

Compared with Mexican specimens of true *clemenciæ*, these are obviously paler, purer gray on the underparts. I disagree with Van Tyne (Auk, 46, 1929, 205) in referring birds from the Chisos Mountains, Texas, to *clemenciæ.* Three adult males from these mountains are to my eye indistinguishable from Arizona birds. In immature males the blue area on the throat is more or less restricted.

Adelomyia melanogenys melanogenys (Fraser).

Thirty-seven specimens: Guarico, Anzoategui, and Guamito, Venezuela; La Palmita, Pueblo Nuevo, Las Ventanas, and Rio Negro, Colombia.

I cannot satisfactorily distinguish Venezuelan from Colombian specimens. Much variation exists; this affects the sheen of the upperparts (from green to bronzy), and the spotting and the amount of buffy below.

Adelomyia melanogenys æneosticta Simon.

Eighteen specimens: La Cumbre de Valencia and Galipán, Venezuela.

In my opinion this is a very poor subspecies, scarcely recognizable even in series. It is a little paler, less buffy, below, and has fewer and smaller spots on the throat, than typical *melanogenys*. The bill averages a little shorter. In order to recognize it at all it is necessary to restrict its range to the coast mountains of Venezuela, since birds from the region surrounding the Maracaibo basin are absolutely indistinguishable from true *melanogenys*.

Simon (1921, 346) says that the name as written was a slip of the pen; he intended to write *æneotincta*.

Adelomyia cervina Gould.

Eighteen specimens: Bitaco Valley, La Cumbre, and Sancudo, Colombia.

Although Chapman (1917, 304) records a specimen indicating the non-intergradation of *melanogenys* with *cervina*, he nevertheless treats them as conspecies. I prefer to consider *cervina* as a full species.

Adelomyia inornata (Gould).

Fourteen specimens: Samaipata, Incachaca, and San José, Bolivia.

Anthocephala floriceps (Gould).

Four specimens: Las Taguas, Pueblo Viejo, and Chirua, Colombia.

Following Simon (1921, 347) and Butler (Ibis, 1926, 335), I revert to *Anthocephala* as the generic name in this case, as the International Code authorizes.

Eugenes spectabilis (Lawrence).

Seven specimens: Escazú, Volcano Turrialba, and Ujuras de Terraba, Costa Rica.

This is another species in which the female has a decidedly longer bill than the male.

Eugenes fulgens fulgens (Swainson).

Fourteen specimens: Taxco (Guerrero), San Bartolo (Distrito Federal), Contreras (Distrito Federal), Jacala (Hidalgo), and Rio Frio (Mexico), Mexico.

These obviously represent true *fulgens*, described from Temascaltepec, Mexico. The northern bird will stand as

Eugenes fulgens aureoviridis Van Rossem.

Eight specimens: Chiricahua Mountains, Huachuca Mountains, and Mount Graham (Turkey Flat), Arizona; OK Bar Ranch and Turkey Spring, New Mexico.

Males of this hummingbird are readily separable from Mexican specimens by their more greenish, less bronzy, general coloration, and in particular by the uniformly lighter, more grayish, less dusky, coloration of the posterior underparts, in which moreover the green wash is less extended. This race, recently discriminated by Van Rossem, is easily distinguishable when smoothly made-up skins are used for making comparisons.

Heliodoxa rubinoides æquatorialis (Gould).

Two specimens: Bitaco Valley, Colombia.

Heliodoxa leadbeateri leadbeateri (Bourcier).

Forty-four specimens: Las Quiguas, La Cumbre de Valencia, Lagunita de Aroa, Galipán, Loma Redonda, Guamito, La Azulita, and Santa Lucia, Venezuela; Bucaramanga and Rio Negro, Colombia; San José and Incachaca, Bolivia.

This series affords no grounds for the recognition of a southern race (*otero*). The exact shade of the bluish purple of the pileum in the male varies somewhat, as also does the length of the bill, but these variations are not geographical.

While females of this form are readily distinguishable from those of *parvula*, they closely resemble those of *henryi* (the northern race of *jacula*), from which they differ only in their slightly longer bill, more bluish green forehead, and brighter green median rectrices. These characters are apparent in immature individuals as well and indicate the close relationship existing between the two species *jacula* and *leadbeateri*.

Heliodoxa leadbeateri parvula von Berlepsch.

Our specimens from Bucaramanga and Rio Negro above listed might be expected to belong to this form, but they do not; nor do the specimens listed by Chapman (1917, 296) from the same general region. However, there are (or were) in the Museum collection ten "Bogotá" skins which are obviously *parvula*. It is a strongly marked form—perhaps a distinct species. Besides being much smaller than *leadbeateri*, it is much brighter-colored, more bronzy green, above, while the median rectrices, which are very dark greenish or even purplish bronze in the latter, are bright bronzy in both sexes of *parvula*. The female of *parvula* is not so heavily spotted below as the female of *leadbeateri*, and in all the skins of the former examined, the abdomen is buffy. It appears, therefore, that we are dealing with a valid form, the exact home of which remains to be discovered.

Heliodoxa jacula henryi Lawrence.

Ten specimens: Volcano Irazú, Volcano Turrialba, La Hondura, and Juan Viñas, Costa Rica.

Sternoclyta cyanopectus (Gould).

Sixteen specimens: Las Quiguas, San Esteban, El Hacha, Aroa, Lagunita de Aroa, El Limon, and Santa Lucia, Venezuela.

Immaturity in both sexes is denoted by cinnamon color on the abdomen. A bird in this stage is figured by Gould and also described by Salvin as the adult female. No. 36,356 closely corresponds to Gould's plate, while No. 36,421, which is apparently an older individual, shows but a trace of cinnamon below. This is a species in which the female has a longer bill than the male.

Topaza pella pella (Linnæus).

Thirty-seven specimens: Tamanoir and Pied Saut, French Guiana.

Surinam is the type-locality. Simon (1921, 152, 353) claims that French Guiana birds are different and accepts for them the name "*smarag-*

dina" Bosc (*lege smaragdula—cf.* Chubb, Bulletin British Ornithologists' Club, 31, 1912, 39). I am unable to check his results, but I cannot see that his description of this supposed form applies any better to our series than does the description of *pella.*

Over half the males, otherwise adult in plumage characters, lack the long rectrices. Females vary in the amount of sheen and in its color.

Topaza pella microrhyncha Butler.

One specimen: Benevides, Brazil.

Butler (Bulletin British Ornithologists' Club, 46, 1925, 56) describes this race on the basis of its smaller size, and in particular of its shorter bill. In adult males from French Guiana the bills are from 23 to 26 mm. long, while in the Pará bird the bill is said to be only 20 mm. Our single specimen is a subadult female, whose measurements (wing, 76; bill, 23.5) do not bear out Butler's figures. Direct comparison of adult males from the two respective regions would be desirable.

Oreotrochilus estellæ[6] (D'Orbigny and Lafresnaye).

Fifteen specimens: Cochabamba, Molle-molle, La Paz, Colomi, Oruro, Guaqui, and Tiraque, Bolivia.

Two immature males (Nos. 81,268, 120,296) differ from adults of the same sex in having the throat soiled white (like the abdomen), with broken spots or streaks of deep steel blue; both show a few new green adult feathers coming in. While No. 120,296 has the abdomen medially chestnut (as in adults), this part shows a few steel blue feathers intermixed. In No. 81,268, on the other hand, the median abdominal stripe is wholly steel blue. There is also a male bird (No. 81,417), apparently adult, which has this part steel blue instead of chestnut. Thus it approaches the supposed species *O. bolivianus* Boucard, as described by Simon and Hellmayr (1908, 4). I cannot make out the characters of the tail-pattern as they describe them; however, our series show a wide variation in this respect in both sexes. I feel convinced that the above series belong to one and the same species, despite the discrepancies in question, and I suspect that two color phases may be involved. In view of such a possibility, the status of *bolivianus* should be reinvestigated. Hellmayr (1932, 236) suggests its intermediacy. Compare, however, Berlioz and Rousseau-Decelle, Oiseau, 3, 1933, 343-347 (not seen by the writer).

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[6] Originally written *estella.*

Oreotrochilus adelæ[7] (D'Orbigny and Lafresnaye).

Four specimens: Molle-molle and Tiraque, Bolivia.

Oreotrochilus chimborazo jamesoni Jardine.

Two specimens: Guagua Pichincha, Ecuador.

Chapman (1926, 302) believes this form to be conspecific with *chimborazo*. Rothschild (Bulletin British Ornithologists' Club, 48, 1927, 41) thinks that they will eventually prove to be dimorphic forms of one species.

Patagona gigas peruviana Boucard.

Twenty-two specimens: Maimará, Argentina; Arani, Vacas, Cochabamba, Molle-molle, Guaqui, and Tiraque, Bolivia; Lima and Galera, Peru; Cumbayá, Ecuador.

On the races of this species compare Hellmayr, 1932, 230-233. It would seem that all our specimens belong to *peruviana*, although they vary greatly among themselves. Some are much duller below than others and more mottled with dusky; others are almost "solid" cinnamon rufous below. I cannot make out the significance of this variation; it seems uncorrelated with sex or season, but may perhaps depend on age.

Our Argentine specimens were taken on November 17 and January 16, which dates would suggest breeding, although Hellmayr says that he has seen no undoubted breeding examples from that country.

Aglæactis cupripennis cupripennis (Bourcier and Mulsant).

Seventeen specimens: Paramo de Guerrero, Ramirez, Paramo de Cachirí, Peña Blanca, and El Cardon, Colombia; Lloa and Mount Pichincha, Ecuador.

Most of these are immature, and the glittering area on the back is restricted or even wanting. Colombian and Ecuadorian birds are alike.

Aglæactis pamelæ[8] (D'Orbigny and Lafresnaye).

Seventeen specimens: Incachaca, Cerro de Incachaca, Cejas del Juno, and Cejas de San Benito, Bolivia.

[7] Originally written *adela*.

[8] Originally written *pamela*.

Lafresnaya lafresnayi lafresnayi (Boissonneau).

Fifteen specimens: Peña Blanca, Sancudo, and Leonera, Colombia.

I have already discussed this series of specimens (1922, 253) and remarked on the variations it shows. Some examples are like Quito specimens of *saül* in the color of the outer rectrices, while others fit the description of *lafresnayi*. Intergradation between these two forms is thus indicated. The pertinence of the name *lafresnayi* to the population of the Bogotá region would have to be admitted on geographical grounds, if for no better reason. Immature males with buffy chin and throat outnumber the adults in the series.

Lafresnaya lafresnayi liriope Bangs.

One specimen: San Miguel, Colombia.

This race rests on a slender basis, and more specimens are urgently needed to confirm or disprove its validity. Compare my previous remarks on this question (1922, 253).

Lafresnaya lafresnayi saül[æ] (Delattre and Bourcier).

Two specimens: Guamito and Tabay, Venezuela.

Zimmer (1930, 281) thinks that the name *gayi* of Bourcier and Mulsant, which has a slight priority over *saül*, should be dropped because of its uncertain application. He would refer Venezuelan specimens to *liriope* of the Santa Marta region. Our male from Guamito, however, does not agree with the Santa Marta specimen, since its tail is somewhat differently colored and the dark tips to the lateral rectrices are smaller. These characters may of course be variable. Chapman (1926, 308) remarks that the range of the white-tailed form is interrupted by that of the buff-tailed one—a suspicious circumstance, suggesting that further comparisons are in order.

Pterophanes cyanopterus cyanopterus (Fraser).

Eight specimens: Paramo de Guerrero, Leonera, and Santa Ignacia, Colombia.

All of these (except a juvenal example, October 22) show a very decided deep blue sheen on the underparts. Simon (1921, 164) mentions this but discounts it as having no geographic significance. Immature males may readily be distinguished by the admixture of rufous cinnamon feathers on the underparts, and by the plain primaries, without any blue. Even in this stage, however, there is a decided blue sheen to the underparts.

Pterophanes cyanopterus peruvianus Boucard.

Eleven specimens: Incachaca, Bolivia.

These differ decidedly from Colombian specimens in lacking any blue sheen on the underparts, which are plain dark green. They are entitled to the name *peruvianus* Boucard (1895, 263). Zimmer, however (1930, 282), claims that Peruvian and Colombian birds are alike, and that "such differences as exist are evidently those of age and individual variation." If this is the case, then the Bolivian bird would have to be renamed, as it is certainly subspecifically separable from that of Colombia, as represented by our series. I have examined no less than thirteen males from Ecuador (Goodfellow and Hamilton, collectors) in the U. S. National Museum. While they are just a trifle bluer below (viewed from the side) than Bolivian males, they are obviously different from Colombian birds as regards this character. Consequently, I have no longer any hesitation about accepting *peruvianus* for all the birds of this species from Ecuador to Bolivia inclusive.

Genus CŒLIGENA Lesson.

As shown by Stone, Auk, 24, 1907, 196, the type of *Cœligena* Lesson, 1832, by the rule of tautonymy, is *Ornismya cœligena* Lesson. If we consider that this species is congeneric with *Ornismya helianthea* Lesson, the type of *Helianthea* Gould, 1848 (also by tautonymy), the former name will supplant the latter for this generic group. I am indebted to Mr. Peters for calling my attention to this necessary change.

Cœligena helianthea (Lesson).

Seventeen specimens: Ramirez, La Pica, Peña Blanca, and El Cardon, Colombia.

Chapman's single specimen came from the eastern slope of the Eastern Andes, in the Temperate Zone. Ours come from the same zone, but on the western slope of the range.

The glittering crown-spot varies greatly in size; in one male it is barely suggested, and in another entirely absent. Possibly some males do not acquire this ornamental character. Females have longer bills than males.

Cœligena eos (Gould).

Seven specimens: Paramo de Rosas, La Cuchilla, and Heights of Tabay, Venezuela.

In what is apparently a younger female (No. 37,297, March 16) the throat is cinnamon (darker than in the adult), streaked with dusky; the bill is shorter (23.5 mm.); and the outer rectrices are shaded subterminally with greenish.

Cœligena phalerata (Bangs).

Thirty-three specimens: El Libano, Cincinnati, San Lorenzo, Sierra Nevada de Santa Marta (6000 feet), Heights of Chirua, San Miguel, and Cerro de Caracas, Colombia.

Compare my former remarks on this species (1922, 255).

Cœligena violifera violifera (Gould).

Thirteen specimens: Incachaca and Cejas del Juno, Bolivia.

Of four females there are two which have a few glittering violet blue feathers on the throat.

Cœligena lutetiæ (Delattre and Bourcier).

Five specimens: Sancudo and Leonera, Colombia; Lloa, Ecuador.

Chapman (1926, 305) is against the recognition of *hamiltoni*, or even of two races of *lutetiæ*. Our single male from Ecuador is precisely like those from Colombia.

Cœligena conradi (Bourcier).

Six specimens: Paramo de Rosas and Guamito, Venezuela.

The single female has the throat buffy instead of green, but this may be due to immaturity.

Cœligena torquata (Boissonneau).

Nine specimens: Las Ventanas, Boca del Monte, and Sancudo, Colombia.

Cœligena inca (Gould).

Eleven specimens: Incachaca, Bolivia.

Cœligena boliviana (Gould).

Five specimens: Samaipata, Incachaca, and San José, Bolivia.

Both Simon and Hartert make this form conspecific with *C. cœligena*—with which it may indeed be connected through *obscura* of Peru (not seen by me)—but for the present I keep it distinct.

Nos. 80,811 and 85,493 I take to be females or young (one is marked ♀, the other ♂). They are very much duller above (less blackish), especially on the crown, than the others.

Cœligena cœligena (Lesson).

Seven specimens: La Cumbre de Valencia and Colonia Tovar, Venezuela.

Chapman (1917, 298) thinks that this form may be a species distinct from its Colombian allies *colombiana* and *ferruginea*, and there is much to be said for this view, especially now that we know that *colombiana* occurs in Venezuela too, at no great distance. The range of the present form is confined to the coast mountains of Venezuela, in the Subtropical Zone.

Cœligena colombiana colombiana (Elliot).

Fifteen specimens: Guarico and Anzoategui, Venezuela; La Palmita, Pueblo Nuevo, and Las Ventanas, Colombia.

The type-specimen of *colombiana*, in the Elliot Collection in New York, has been almost destroyed by dermestes, but other specimens fully confirm the above identification. Carriker's discovery of this form in the mountains southwest of Barquisimeto added it to the Venezuelan list and brought its range within measurable distance of that of *cœligena*. These Venezuelan specimens are precisely like those from Colombia and show no approach to the form of the coast range, *cœligena*. Under the circumstances I think the latter should stand alone.

Cœligena colombiana ferruginea Chapman.

Seven specimens: Bitaco Valley, Colombia.

Ensifera ensifera (Boissonneau).

Three specimens: Ramirez, Colombia; Incachaca, Bolivia; El Angel, Ecuador.

I agree with Chapman (1926, 308) that the recognition of more than one race of this species is inexpedient. The recently described race *cœrulescens* (Lowe, Ibis, 1939, 73) might be a color aberration (except for its shorter bill). Its locality is unknown. The Incachaca specimen is the first record for Bolivia; it is of course conceivable that it might represent a new race.

Sephanoides fernandensis fernandensis (King).

Eight specimens: Mas-a-tierra Island, Chile.

Sephanoides sephaniodes (Lesson and Garnot).

Nine specimens: Mas-a-tierra Island, Guafo Island, Puerto Sarjento, Rio Huemules, and Puerto Melinca, Chile.

Boissonneaua matthewsi (Bourcier).

One specimen: Baños, Ecuador.

Boissonneaua flavescens flavescens (Loddiges).

Forty specimens: Las Ventanas, Ramirez, Paramo de San Pedro, La Pica, Cachirí, Rio Negro, Bitaco Valley, and Sancudo, Colombia; Guamito, Venezuela.

No geographic variation is in evidence in this series. Females have the green of the underparts less "solid," *i.e.*, more interruped by buff; they also average smaller.

Heliangelus mavors Gould.

Thirty-eight specimens: Anzoategui, Paramo de Rosas, Guamito, La Cuchilla, and Las Piedras, Venezuela.

Heliangelus exortis (Fraser).

Sixteen specimens: Sancudo, Colombia.

While in coloration some females approximate the males, they are smaller in size. Chapman has shown (1917, 305) that *soderstromi* Oberholser was based on a female of the present form.

Heliangelus clarissæ[9] (Longuemare).

Twenty-six specimens: Las Ventanas, Ramirez, La Pica, Rio Negro, and Boca del Monte, Colombia.

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[9] The original spelling is *clarisse*.

These localities are all in the Subtropical Zone of the Eastern Andes (both slopes), in the region of Cocui. Chapman did not encounter this species. The "varieties" mentioned by Simon (1921, 367) are in my opinion aberrations or hybrids. Several examples in excessively worn breeding dress are included; they appear almost dusky below, with a streaked effect. Adult females usually have some rosy red on the throat, but the color is less extensive than in the males and is bounded posteriorly by a black line. Immature males are similar.

Heliangelus amethysticollis (Lafresnaye and D'Orbigny).

Twelve specimens: Incachaca, Bolivia.

Carriker (1935, 346-7) would reduce *clarissæ* to subspecific status under *amethysticollis*, with *laticlavius* as a connecting link. But I am not prepared to follow him in this, and in my opinion the two forms should be separated for the present.

Heliangelus spencei (Bourcier).

Four specimens: Tabay and Heights of Tabay, Venezuela.

Vestipedes cupreoventris (Fraser).

Twelve specimens: Paramo de Guerrero, Paramo de San Pedro, Ramirez, Peña Blanca, El Cardon, and Boca del Monte, Colombia; Paramo de Frias, Venezuela.

Chapman's collectors did not secure this species. The above list of localities where it occurs is accordingly welcome information. It is thus shown to be a Temperate Zone species, found in the Eastern Andes of Colombia and the Andes of Merida in Venezuela. The series includes two young birds, which lack the coppery sheen of the underparts.

Vestipedes vestitus (Lesson).

Eight specimens: Paramo de Guerrero, Ramirez, and Cachirí, Colombia; Paramo de Frias and La Culata, Venezuela.

Our four males from Colombia are immature, as their buffy lores indicate. Viewed from in front, they show somewhat of a black band below the blue gular spot. Of two adult males from the Andes of Merida, one has this dark band broad and distinct; in the other it is virtually lacking. Our birds compare favorably with Ecuador skins, but even so, I cannot escape the impression that we are dealing here with an individual rather than a geographical variation, and I would therefore consider *smaragdinipectus* a pure synonym of *vestitus*.

Chapman (1917, 300) found this species at only one place in the southern Central Andes. Our specimens extend its known range to the Eastern Andes and thence to the Andes of Merida in Venezuela.

Vestipedes derbyi longirostris Hartert.

Ten specimens: Sancudo and Leonera, Colombia.

Like those recorded by Chapman, these come from the Central Andes. Typical *derbyi* has been recorded from southern Colombia (Pasto); however, all the above fit the description of *longirostris* as to length of bill.

The peculiarities of the tail in this species have caused it to be set aside generically as *Erebenna*.

Vestipedes mosquera[i] (Delattre and Bourcier).

Twelve specimens: Leonera, Colombia.

These agree with two specimens in the American Museum from Santa Isabel and the Andes west of Popayan. It may here be noted, however, that *mosquera* (from Pasto, Colombia) is described and figured as having the underparts "bright reddish copper, more bronzy on the breast," whereas our birds from the Central Andes have green underparts, and the breast merely tinged with bronzy. In adult males the outer rectrices are narrower and greener than in females.

Vestipedes glaucopoides (D'Orbigny and Lafresnaye).

Two specimens: Incachaca, Bolivia.

Haplophædia aureliæ caucensis (Simon).

Sixteen specimens: Heights of Caldas, Bitaco Valley, and La Cumbre, Colombia.

Ocreatus underwoodi underwoodi (Lesson).

Forty-seven specimens: Anzoategui, Guamito, and La Azulita, Venezuela; La Palmita, Las Ventanas, Cachirí, Heights of Caldas, Bitaco Valley, and La Cumbre, Colombia.

In this fine series of specimens from Colombia and the Merida region of

Venezuela I can discover no racial differences; consequently I agree with Simon (1921, 375) in considering *discifer* of Heine a pure synonym of *underwoodi.* Young males generally have more spotting on the underparts than adult females, and usually also some traces of the glittering green feathers of the adult stage.

Ocreatus underwoodi polystictus, subsp. nov.

Twelve specimens: Galipán and Silla de Caracas, Venezuela.

Type, No. 53,746, Collection Carnegie Museum, adult female; Galipán, Cerro del Avila, Venezuela, March 7, 1914; Samuel M. Klages.

Subspecific characters.—Similar to *Ocreatus underwoodi underwoodi* (Lesson) of Colombia and the Andes of Merida in Venezuela, but adult male averaging more bronzy above, and adult female more heavily spotted below with green.

Range.—Coast Range of Venezuela (Subtropical Zone).

Remarks.—Hellmayr and von Seilern (1912, 145) have referred specimens from Silla de Caracas to *discifer,* which in my opinion is a synonym of *underwoodi.* I consider that the above specimens belong to a slightly differentiated race peculiar to the coast range of Venezuela. The males are scarcely different from those of *underwoodi,* but the females stand out well in comparison by reason of their more heavily spotted underparts. There are some specimens of *underwoodi* which are similar, but they are marked as young males. The possibility exists that the individuals above described may also be young males, but I think it hardly likely that all four of them have been wrongly sexed.

Ocreatus addæ (Bourcier).

Five specimens: Samaipata and San José, Bolivia.

Simon (1921, 376, note) thinks that *rufocaligatus* Gould should be used for this species. According to Sherbourne ("Index Animalium") both names appeared in November, 1846, and there is no way of telling which was first. So I follow the rule of *auctorum plurimorum* in this case.

Lesbia victoriæ æquatorialis (Boucard).

Two specimens: Lloa, Ecuador.

For the use of *Lesbia* instead of *Psalidoprymna* see Zimmer, 1930, 290.

Lesbia victoriæ victoriæ (Bourcier and Mulsant).

One specimen: Lagunillas, Colombia.

Lesbia gouldi gracilis (Gould).

Two specimens: Lloa, Ecuador.

Sappho sapho (Lesson).

Twenty-nine specimens: Samaipata, Chilon, Vacas, Cochabamba, and Comarapa, Bolivia.

Wetmore (1926, 231) and Butler (Ibis, 1926, 406) have shown that the name under which this species has been passing really applies to the other species of the genus, heretofore called *phaon*.

Adult males are in the minority; most of the series is composed of immature males (with short tails) and females.

Sappho sparganura (Shaw).

Three specimens: La Paz and Guaqui, Bolivia.

This is the species formerly called *Lesbia phaon*, as above noted.

Ramphomicron microrhynchum microrhynchum (Boissonneau).

Twenty-six specimens: Ramirez, La Pica, El Cardon, and Sancudo, Colombia.

Immature males, showing the transition into adult dress, greatly predominate over old birds in this series. Juvenal males resemble adult females but have longer tails.

Ramphomicron microrhynchum andicola Simon.

One specimen: Paramo de Frias, Venezuela.

A female example, apparently not different from Colombian birds. Chapman (1926, 319) inferentially indorses the validity of this race.

Metallura williami (Delattre and Bourcier).

Fifteen specimens: Leonera, Paramo de Ruiz, and Santa Ignacia, Colombia.

All these localities are in the Paramo Zone of the Central Andes.

Metallura malagæ von Berlepsch.

Five specimens: Incachaca, Bolivia.

Four males and one female of this species, heretofore known only from the type in the von Berlepsch Collection. It was described from a female, and the description fits our female closely. A fuller description will be in order. Adult male: general color green, uniform above, duller below, but the throat glittering when viewed from in front; underparts with dusky brown bases to the feathers; flank-tufts white; under tail-coverts bronzy, with broad rufescent edgings; wings brown with a bronzy or purplish shade; edge of wing cinnamon; a small white spot behind the eye; tail above showing bluish, bronzy, or purple reflections in certain lights, below rich shining coppery purple. Female similar but duller, the underparts buffy spangled with green; tail also duller, and the outer rectrices with grayish buffy tips. Male: wing, 64, 64, 63, 63; tail, 44, 45, 43, 44; bill, 20, 20, 20, 22. Female: wing, 57; tail, 39; bill, 20.

M. malagæ has its nearest relative in *M. æneocauda* (Gould), but its bill is much longer and its tail is differently colored. Whether the two are representative forms or have overlapping ranges, I cannot say. Simon (1921, 201) thinks that *malagæ* may be based on a hybrid or young bird, but I am convinced that it is a valid form.

Metallura smaragdinicollis smaragdinicollis (Lafresnaye and D'Orbigny).

Twenty-seven specimens: Incachaca and Cejas del Juno, Bolivia.

Zimmer (1930, 289) follows Hartert (1922, 410) in making this form conspecific with *tyrianthina*. Their close relationship may be admitted, however, without resort to the trinomial. The different color of the tail seems to me a good specific character.

Carriker (1935, 347) has discussed the ranges of *smaragdinicollis* and its northern race, *septentrionalis*, in Peru.

Metallura tyrianthina tyrianthina (Loddiges).

Thirty-two specimens: Las Ventanas, Ramirez, Paramo de Guerrero, Cachirí, La Pica, Peña Blanca, Boca del Monte, and Sancudo, Colombia.

Considerable variation is in evidence, but as a series these are easily distinguishable from Venezuelan birds. By comparison they are light-colored, purer green above, and with considerable white mottling on the underparts; the under tail-coverts are edged with light buff. Our specimens all come from the Eastern Andes except two from Sancudo, which is located in the Western Andes.

Metallura tyrianthina oreopola Todd.

Thirty-one specimens: Paramo de Rosas, Teta de Niquitao, Heights of Tabay, La Culata, and Paramo de Frias, Venezuela.

Compared with "Bogotá" skins of *tyrianthina*, males differ in their darker general coloration, and especially in the color of the tail, which is a deep maroon purple, instead of bronzy or coppery. The edgings of the under tail-coverts also average darker—rufescent rather than buff. The difference in the color of the tail holds good for females also. Of course, the specimens must be viewed from the right angle with reference to the light.

With the additional material received since the original description appeared, it turns out that *oreopola*, the form of the Andes of Merida, is a race intermediate in its characters between true *tyrianthina* of the Colombian Andes and the dark race, *chloropogon*, of the coast range of Venezuela. It differs from *tyrianthina* as already said, and from *chloropogon* in being greener above and below (in both sexes), with less dusky color when viewed from in front. It is confined to the Andes of Venezuela, where it ranges through the Temperate Zone.

Simon (1921, 382) refers *oreopola* and a synonym (*harterti* Schlüter, published a few months later) to the synonymy of *tyrianthina* without any misgivings, and he intimates that comparison must have been made with *quitensis*, instead of *tyrianthina*. In this supposition he is quite mistaken, and the series now available fully confirms the validity of the form in question.

Metallura tyrianthina chloropogon (Cabanis and Heine).

Twenty-three specimens: Galipán, Silla de Caracas, El Limon, Colonia Tovar, and Pico Naiguata, Venezuela.

Simon (1921, 199, note) quotes the original Latin diagnosis of this form, which he considers hypothetical, and adds that the two specimens on which it was based had been in alcohol. They lacked data, and later authors have merely copied the description. Now I find that Hellmayr, who handled our specimens some years ago, has penciled the above name on the labels of several of them. He must have seen the types at one time and has evidently satisfied himself as to the application of the name to the form of *tyrianthina* inhabiting the coast range of Venezuela. All the characters appearing in *oreopola* of the Merida region are carried a step further in *chloropogon*. It is a dark-colored race; males viewed from in front appear almost black. The crown is blackish green, and the tail also is more deeply colored than in *oreopola*. In all respects it answers the original description, and I am satisfied that Hellmayr's identification is correct.

In the coast mountains this form appears to be a bird of the Subtropical Zone.

Metallura districta Bangs.

Thirty-three specimens: Valparaiso, El Libano, San Lorenzo, Las Taguas, Cincinnati, Sierra Nevada de Santa Marta (6,000 and 8,000 feet), Heights of Chirua, San Miguel, and Cerro de Caracas, Colombia.

This form is restricted to the Sierra Nevada de Santa Marta, where it ranges through the Subtropical and Temperate Zones. Compare my former remarks on the above series (1922, 250).

Chalcostigma stanleyi vulcani (Gould).

One specimen: Colomi, Bolivia.

Chalcostigma heteropogon (Boissonneau).

Thirteen specimens: Paramo de Guerrero, Paramo de San Pedro, Ramirez, La Pica, and Lagunillas, Colombia.

These localities all lie in the Eastern Andes (Temperate and Paramo Zones). Young males of this species lack any trace of the long colored throat-plumes; the throat and breast are colored like the rest of the underparts.

Oxypogon guerini (Boissonneau).

Twenty-two specimens: Lagunillas, Colombia.

These come from the Paramo Zone of the Eastern Andes, southeast of Bucaramanga. This species was not taken by Chapman's collectors, and has been known heretofore mainly from "Bogotá" skins. Our series includes a number of immature males, which differ from adults in having the long plumes of the crest and throat merely indicated.

Oxypogon lindeni (Boissonneau).

Thirty-seven specimens: Teta de Niquitao, Paramo de Merida, and Paramo de Frias, Venezuela.

Immature males resemble the adults, but the long feathers of the crest and throat are less developed, and the colors in general are duller.

Oxypogon stübeli Meyer.

One specimen: Paramo de Ruiz, Colombia.

This is a female, and it is the fourth specimen on record of this rare species. The locality is practically the same as that from which Chapman's specimens came.

Oxypogon cyanolæmus Salvin and Godman.

Seventeen specimens: Paramo de Mamarongo and Paramo de Chiruqua, Colombia.

Compare my previous discussion of this species and series (1922, 248).

Opisthoprora euryptera (Loddiges).

Three specimens: Leonera, Colombia.

Aglaiocercus emmæ (von Berlepsch).

Seven specimens: Bitaco Valley and Sancudo, Colombia.

For the use of this generic term, compare Zimmer, 1930, 290.

Aglaiocercus caudatus (von Berlepsch).

Thirty-seven specimens: Anzoategui and Paramo de Rosas, Venezuela; La Palmita, Pueblo Nuevo, Ramirez, and Cachirí, Colombia.

Several authors have put forward suggested arrangements of this generic group, no two of which are alike. I find myself most nearly in agreement with Simon (1921, 385), who ranks all the described forms as species. In any case, I do not see how *caudatus* can be conspecific with *kingi*—the differences between the two are too pronounced and constant. In the series examined there are several short-tailed males, which are otherwise like the longer-tailed birds. Presumably these are younger individuals, but not one of them shows a white sub-loral streak, which seems to characterize immature birds of the other forms of this group.

The present series supplies proof that *caudatus*, the green-throated, blue-tailed form of this genus, inhabits the Eastern Andes of Colombia as well as the Andes of Venezuela. Its range thus overlaps that of *kingi*, which according to Chapman (1917, 307) inhabits the Subtropical Zone of the Eastern Andes as far north at least as Bucaramanga. Adult males of *caudatus* from Colombia differ from Venezuelan birds, on an average, in the greener shade of the tips of the rectrices (except the outermost). These differences, however, are too slight and inconstant to justify any formal separation.

Aglaiocercus smaragdinus (Gould).

Thirteen specimens: Incachaca and San José, Bolivia.

After considering its distinctive characters, I have little hesitation in ranking this as a full species, after Simon.

Aglaiocercus kingi (Lesson).

Six specimens: Rio Negro, Colombia.

Simon (1921, 387) has described two "varieties" of this species, both from the "Savanna of Bogotá," but on general principles I doubt their validity. From the descriptions I would infer that they are based on individual variants.

Aglaiocercus margarethæ (Heine).

Eleven specimens: La Cumbre de Valencia, Silla de Caracas, Galipán, Colonia Tovar, and El Limon, Venezuela.

An immature example from La Cumbre de Valencia, with a short tail and a white subloral streak, but without a gular spot or glittering crown, is the only specimen from that locality, but Hellmayr and von Seilern (1912, 147) have examined a good series, including long-tailed adults.

This form, with its greenish outer rectrices and conspicuous gular spot, is certainly specifically distinct from *caudatus*, as Chapman contends (1917, 308). I would go still further, and keep it specifically distinct from *kingi*, on account of its shorter and differently colored tail, which has the exposed part of the rectrices (except the outermost pair) largely green. It is confined to the coast range of Venezuela, in the region of Caracas, and is a species of the Subtropical Zone. Further to the eastward it is replaced by a different form,

Aglaiocercus berlepschi (Hartert).

Six specimens: El Limon and La Elvecia, Venezuela.

In this form the female is nearly white below; the tail of the male is intermediate between that of *kingi* and *margarethæ*. On these grounds I consider *berlepschi* specifically distinct, although Hartert (1922, 411) somewhat caustically insists on its subspecific status. Our two females have the white tail-spot larger than in those of the allied forms.

Schistes geoffroyi geoffroyi (Bourcier and Mulsant).

Three specimens: La Cumbre de Valencia, Venezuela; La Palmita, Colombia.

This is apparently the first Venezuelan record for this species. Unfortunately the single specimen is an immature bird and therefore not exactly comparable with our Colombian examples; however, it closely resembles a presumed Colombian specimen of approximately the same age in the collection of the American Museum.

Schistes geoffroyi bolivianus Simon.

One specimen: San José, Bolivia.

This form was originally described as a race of *S. albogularis*, but is placed with *geoffroyi* by Chapman (1926, 323). Our specimen differs from Simon's description in having the under tail-coverts plain buff.

Schistes albogularis Gould.

Four specimens: Heights of Caldas, La Cumbre, and Sancudo, Colombia.

Heliothryx aurita (Gmelin).

Twenty-nine specimens: El Llagual, Venezuela; Cayenne, Tamanoir, and Pied Saut, French Guiana; Obidos, Manacapurú, and Rio Manacapurú, Brazil.

Females of this form are spotted below with dusky.

Lönnberg and Rendahl (Arkiv för Zoologie, 14, No. 25, 1922, 61) describe a supposed race (*major*) of this species from the western slope of the Andes. It was based on a single male bird with a wing of 69 mm., as opposed to 61 mm. recorded for Guiana specimens. Our Guiana males, however, have the wing 60-67 mm., so the difference is in my opinion too slight for formal recognition.

Heliothryx auriculata phainolæma Gould.

Five specimens: Pará, Benevides, Colonia do Mojuy, Aveiros, and Santarem, Brazil.

All are sexed as females. Three are immaculately white below, while two have very light spotting. Otherwise I can discover no differences between them and females of *aurita* from north of the Amazon. The name here used is given solely in geographical grounds (*cf.* Hellmayr, 1905, 297-8).

I consider *H. aurita* and *H. auriculata* specifically distinct.

Heliothryx auriculata auriculata (Nordmann).

Three specimens: Buena Vista, Bolivia; Hyutanahan and São Paulo de Olivença, Brazil.

These are females and are assigned here on geographical grounds alone (*cf.* Hellmayr, 1905, 297-8, and Naumburg, 1930, 158). The specimen from Bolivia constitutes (I think) the first record for that country.

Heliothryx barroti (Bourcier).

Thirteen specimens: Jaraquiel, El Tambor, Quibdó, El Tambo, Andagoya, and Malagita, Colombia; Pozo Azúl de Pirris, Carrillo, La Hondura, and Tucurriqui, Costa Rica.

Two Costa Rican females seem to be adult; they both have longer tails than the males, a spotted throat and breast, and a black bar on the outer rectrices. Ridgway does not refer to this last feature in his description, and he attributes the spotting of the underparts to immaturity—wrongfully, as I believe. A female from Jaraquiel, in the swampy forest region south of the mouth of the Rio Sinu, tends to confirm Chapman's surmise as to the origin of the type-specimen. But he is clearly wrong in intimating that in Colombia this species is confined to the Pacific coast and humid lower Cauca-Magdalena region; our specimens from El Tambor disprove that. They are smaller than the rest of the series and probably represent an unnamed interior race.

Genus HELIOMASTER Bonaparte.

I follow Peters (*in litt.*) in merging *Anthoscenus* Richmond with *Heliomaster*.

Heliomaster furcifer (Shaw).

Fifteen specimens: Santa Cruz de la Sierra, Buena Vista, Buyuivi, Yacuiba, and Chilon, Bolivia; Embarcación, Argentina.

Only two adult males are included, but there are a goodly number of young males in transition dress.

Heliomaster longirostris longirostris (Audebert and Vieillot).

Thirty-three specimens: Buena Vista, Bolivia; Itaituba and Obidos, Brazil; El Llagual, Upata, El Dorado, La Bomba, San Rafael, and Mirasol, Venezuela; Dibulla, El Tambor, Soatatá, La Cumbre, and Yumbo, Colombia; Escazú, Guapiles, La Hondura, Boruca, and Buenos Aires, Costa Rica.

After a careful study of this fine series I agree with Ridgway (1911, 346) that the recognition of more than one form in the immense area which they cover is unjustified. Variation is excessive, it is true, but it is not geographical. Chapman (1917, 311) calls Colombian specimens *stewartæ* because of their slightly shorter bills. Ridgway's measurements, however, show to the contrary; and looking at our series, I should certainly not divide it on that account. Furthermore, I cannot distinguish our Bolivian skins by the characters ascribed to specimens from that country by Bond and deSchauensee (Notulae Naturae, 93, 1941, 3); consequently I cannot recognize their form *cæruleiceps*. Simon separates Costa Rican birds under the name *chalcura* (1921, 219, 392)—another supposed race which I am unable to make out. Again, Sassi (Temminckia, 4, 1939, 147) recognizes a race *veraguensis* (*ex* Boucard, 1895) for the bird of Panama—a region from which I have seen no specimens.

Heliomaster constanti constanti (Delattre).

Nine specimens: Bebedero and Miravalles, Costa Rica.

Ridgway inadvertently listed this species from Boruca, Costa Rica, but the specimen in question belongs to *H. l. longirostris*. It is doubtful if the ranges of the two species really overlap; the San José records may not refer exactly to the same locality. *H. constanti* may be readily distinguished from the other by its larger size, less distinctly dark-centered under tail-coverts, and in particular by the color of the lateral rectrices, which are always grayish beneath basally instead of bronzy greenish as in *longirostris*. These differential characters hold good in immature as well as in adult birds.

Thaumastura cora (Lesson and Garnot).

Two specimens: Lima, Peru.

Calliphlox amethystina (Gmelin).

Twenty-four specimens: San Felix, El Callao, San German de Upata, Sierra de Carabobo, and La Azulita, Venezuela.

Zimmer, who has handled this series, comments on the age variation which it exhibits. Not one of the males has the throat "solid" ruby red, and in some this color is reduced to a mere trace. Few of them have the tail-feathers elongated, either. Females vary with regard to the amount of cinnamomeous suffusion below, the amount of dusky spotting on the throat, and the development of the pectoral band.

Calliphlox mitchelli (Bourcier).

One specimen: La Cumbre, Colombia.

I am not strongly impressed with the characters on which Ridgway based his genus *Nesophlox*, but if it is recognized, both this species and *Doricha bryantæ* Lawrence would either have to be referred thereto or else separated under the generic name *Philodice* Mulsant and Verreaux (1866), as Simon has already done. In the former case *Philodice* would supplant the later *Nesophlox*. No great violence would be done to the facts, however, by combining all these forms under *Calliphlox*.

Calliphlox bryantæ (Lawrence).

Four specimens: Volcano Irazú, Costa Rica.

In coloration this species is close to *C. mitchelli* of western Colombia.

Calliphlox evelynæ (Bourcier).

Twelve specimens: Blue Hills (New Providence), Staniard Creek (Andros), Sand Bank (Abaco), Powel Cay (Abaco), Strangers Cay (Abaco), and Walker Cay (Abaco), Bahama Islands.

Calliphlox lyrura lyrura (Gould).

Twelve specimens: Alfred Sound (Great Inagua) and Mathewtown (Great Inagua), Bahama Islands.

Microstilbon burmeisteri (Sclater).

Thirty-five specimens: Buena Vista, Bolivia.

This is the bird that I described (Proceedings Biological Society of Washington, 26, 1913, 174) as *Microstilbon insperatus*, after Oberholser had advised me that it must be new. We were both deceived into so thinking by the inadequate descriptions consulted, which failed to mention the peculiar shape of the tail. Hellmayr wrote me shortly thereafter stating that the specific name was antedated, but that in his opinion the genus was acceptable. The species is clearly out of place in *Chætocercus*, and I think justly deserves generic separation. Only one of the males shows some scattered glittering red feathers on the sides of the throat. The type I selected is undoubtedly immature, as is evident by a comparison with the plate in Sclater and Hudson's "Argentine Ornithology," which purports to represent the type-specimen of *burmeisteri*. Furthermore, our birds differ from the plate in having no rufous whatever on the tail, but according to Lillo (Annales Museo Nacional de Buenos Aires, 8, 1902, 197) the plate and description are erroneous in this respect. There is of course a possibility that Bolivian birds might be racially distinct from those from northern Argentina, the type-locality.

Females fall into two groups: one, a larger bird, with the tail more extensively rufous terminally, and with the underparts more decidedly and more uniformly buff; the other a smaller bird, with reduced rufous tail-spots, and with the underparts not so richly or uniformly buff. The latter group correspond in size to the males, but this difference may not be significant, since in the allied genus *Chætocercus* the females are uniformly larger than the males. What its real significance may be I do not know.

Calothorax lucifer (Swainson).

Six specimens: Morales (San Luis Potosi) and Chilpancingo (Guerrero), Mexico; Juniper Canyon and Hot Springs, Texas.

Archilochus colubris (Linnaeus).

Forty-six specimens: Juan Viñas and Volcano Irazú, Costa Rica; El Cayo, British Honduras; Acapulco (Guerrero) and Chilpancingo (Guerrero), Mexico; Durham County, North Carolina; White Sulphur, West Virginia; Alexandria County, Virginia; Washington, District of Columbia;

Round Grove, Illinois; Brookville, Indiana; Laughlintown, Cresson, Wilkinsburg, Tamarack Swamp (Clinton County), Leasuresville, Cherry Spring, Pittsburgh, Sewickley, Hartstown, Linesville, Wildwood, and Leetsdale, Pennsylvania; London and North Bay, Ontario.

A specimen from Chilpancingo taken October 5, with a few glittering feathers coming in on the throat, marks the beginning of the moult in the young male. One from Costa Rica (April 3) and one from British Honduras (April 4) also show the throat-gorget being renewed by moult.

Archilochus alexandri (Bourcier and Mulsant).

Forty-two specimens: Arroyo de la Presa (Tamaulipas) and Gato Canyon (Lower California), Mexico; Marathon, Hot Springs, Boquillas, Glass Mountains, and Combs Ranch, Texas; Apache, Double Adobes, OK Bar Ranch, and Turkey Spring, New Mexico; Tucson, Carr Canyon, Sunnyside, and Cave Creek, Arizona; San Diego and Fort Jones, California; Cottonwood Springs, Utah.

Calypte annæ[10] (Lesson).

Eighteen specimens: San Quintin, Gaudalupe Island, and Valladares, Lower California; Fort Jones, San Diego, and Nicasio, California.

Calypte costæ (Bourcier).

Twenty-five specimens: San Quintin, San Pedro, Valladares, Cape Colnett, San Fernando, Turtle Bay, Todos Santos Islands, and San Benito Island, Lower California; San Diego and San Felipe Canyon, California.

Calypte helenæ Lembeye.

Ten specimens: Caleta Grande and Los Indios, Isle of Pines.

Only one adult male in the series.

Stellula calliope calliope (Gould).

Thirty-nine specimens: Apache, Bingham, and San Ysidro, New Mexico; San Jacinto Mountains, California; Glendale, Spanish Lake, and Fort Klamath, Oregon; Barriere, British Columbia.

A southern race of this species from Guerrero, Mexico, described by Griscom, necessitates the use of a trinomial name for the northern bird.

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[10] Originally written *anna*.

Myrtis fanny[æ] Lesson.

One specimen: Lima, Peru.

Chætocercus jourdani (Bourcier).

Seven specimens: Colonia Tovar, San Rafael, and Mirasol, Venezuela.

This species is ascribed to Trinidad, where, however, it must be very rare or accidental (*cf.* Hellmayr, Novitates Zoologicae, 12, 1905, 59). Its true habitat appears to be the eastern part of the coast range of Venezuela.

Chætocercus rosæ (Bourcier and Mulsant).

Twelve specimens: La Cumbre de Valencia, Guarico, and El Limon, Venezuela; La Palmita and Pueblo Nuevo, Colombia.

Colombian and Venezuelan specimens are alike. An immature male bird has the underparts nearly white, instead of cinnamon as in the female.

Acestrura mulsanti (Bourcier).

Seven specimens: Incachaca and San José, Bolivia.

An immature male dated June 21 has the throat-gorget restricted and broken, and the white of the underparts more extended.

Acestrura heliodor[i] (Bourcier).

Eleven specimens: Las Ventanas, Ramirez, and Cachirí, Colombia; La Azulita, Venezuela.

The Colombian localities are all in the Eastern Andes. Venezuelan and Colombian specimens agree.

Acestrura astreans Bangs.

Twenty specimens: Las Taguas and Cincinnati, Colombia.

Selasphorus platycercus platycercus (Swainson).

Twenty-seven specimens: Carr Canyon and Tucson, Arizona; Apache, Cowles, and Bingham, New Mexico; Laguna, Texas; Silverton, Bailey's, and Estes Park, Colorado; Blue Mountain, Indian Canyon, Ashley Canyon, Vernal (20 miles north), and Green Lake, Utah.

Post-mortem change is indicated by the markedly brighter coloration of recently collected specimens. A Guatemalan race of this species has been discriminated by Griscom and makes a trinomial name necessary.

Selasphorus flammula Salvin.

Seven specimens: Volcano Irazú and Volcano Turrialba, Costa Rica.

Only one adult male is included in this series. Females of this species are close to those of *S. torridus*, but they may be readily distinguished from those of *S. scintilla* by their larger size and less cinnamomeous suffusion below.

Selasphorus simoni Carriker.

One specimen: Volcano Barba, Costa Rica.

Selasphorus scintilla (Gould).

Fourteen specimens: Escazú, La Hondura, Juan Viñas, Ujuras de Terraba, and La Estrella de Cartago, Costa Rica.

The tail-pattern varies so much in this species that it is obvious that *S. underwoodi* Salvin must have been based on an extreme example, as suggested by Carriker and by Ridgway.

Selasphorus sasin[i] sasin[i] (Lesson).

Ten specimens: Nicasio, San Geronimo, and Cerrito Hill, California; Huachuca Mountains, Arizona.

For this bird I accept the change of name proposed by Grinnell, Condor, 33, 1931, 77.

Arizona records for this species, according to Swarth, are still few in number. Our specimens were taken in 1919 and 1920 by Wilmot W. Brown, Jr., on July 15, 19, and 29, and were received in exchange from Dr. L. C. Sanford.

Selasphorus rufus (Gmelin).

Seventy-seven specimens: Chilpancingo (Guerrero), Contreras (Distrito Federal), Valley de las Palmas (Lower California), Mexico; San Diego and Donner, California: "Reef Road" (Huachuca Mountains) and Mount Graham, Arizona; Apache, Bingham, and San Ysidro, New Mexico; Beaverton, Corvallis, Grants Pass, Oceanside, and Newport, Oregon; Comox and Merville, British Columbia.

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LIST OF LOCALITIES

So many of the localities used in this connection do not appear on current maps that it seems desirable to indicate their approximate position for the purposes of the present paper. The subjoined lists of locality-names from certain South American countries, with the outline maps, may be found useful. Fuller lists, with descriptions of the localities, will be reserved for the projected series of faunal papers dealing with the regions involved.

Colombia.—For all localities in the Santa Marta region, see the Annals of the Carnegie Museum, vol. 14, 1922, pp. 106-130. Our specimens from other parts of Colombia were collected by Mr. M. A. Carriker, Jr., at the following places (numbers refer to the map):

1. Soatatá (or Sautatá), Rio Atrato.
2. Boca Murindó, Rio Atrato.
3. Murindó.
4. Quibdó, Rio Atrato.
5. El Tambo.
6. Andagoya, Rio San Juan.
7. Potedó, Rio San Juan.
8. Malagita, Rio San Juan.
9. Cordoba.
10. Espinal.
11. Caldas.
12. Bitaco Valley.

Pavas (north of La Cumbre).

13. La Cumbre (probably the Las Lomitas of Chapman's map).
14. Yumbo (Yumba on map).
15. Cartagena.
16. Turbaco.
17. Calamar, Rio Magdalena.
18. Rio Sinu Delta.
19. Puerto Zapote.
20. Lorica.
21. Jaraquiel.
22. Monteria.
23. Sancudo.
24. Leonera.

Frailejonal, just east of Leonera.

Santa Ignacia, just north of Paramo de Ruiz.

25. Paramo de Ruiz (Paramo of Santa Isabel of Chapman's map).
26. Mariquita.
27. Gamarra.
28. Aguachica.
29. El Cauca.
30. La Palmita.

Pueblo Nuevo, between La Palmita and Ocaña.

31. Ocaña.
32. Las Ventanas.
33. Ramirez.

Paramo de San Pedro, between Las Ventanas and Paramo de Guerrero.

34. Paramo de Guerrero.
35. Cachirí.
36. Paramo de Cachirí.
37. El Tambor.
38. Bucaramanga.
39. La Pica.

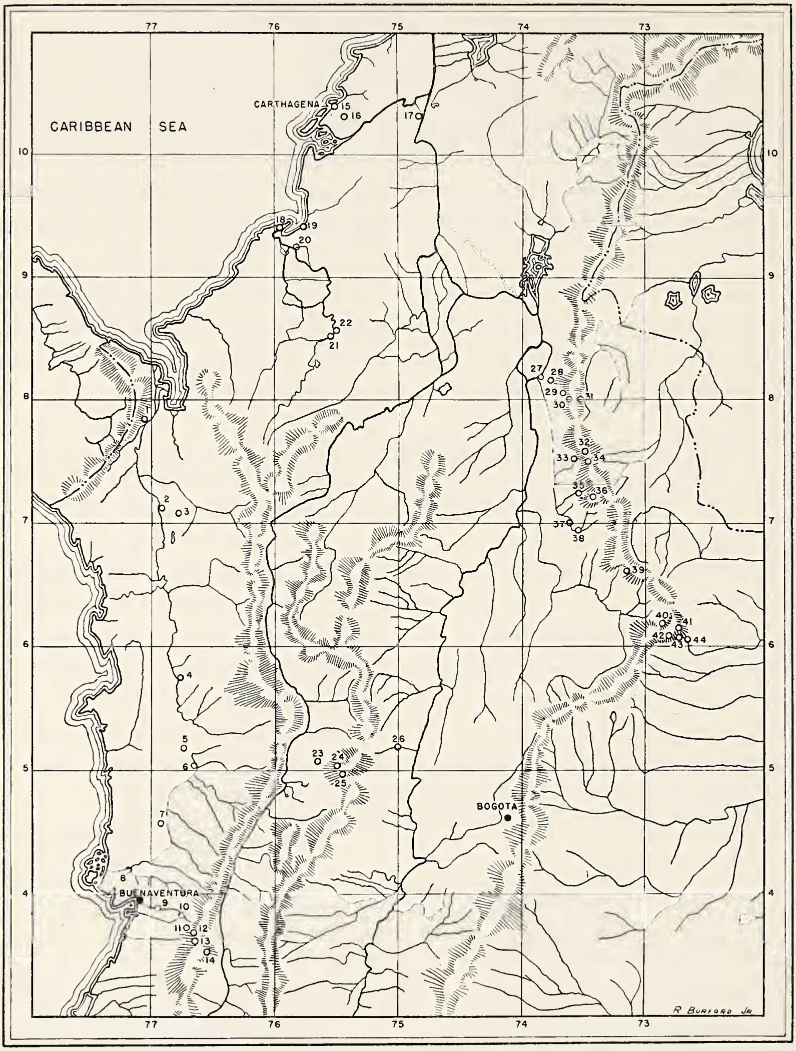

FIG. 1. Map of Colombia, to show localities mentioned in text.

40. Peña Blanca.
    El Cardon, the pass above Peña Blanca.
41. Lagunillas.
42. Peña Negra.
    Boca del Monte, northwest of Chinivaque.
43. Chinivaque.
44. Rio Negro.
    La Colorada and Palmar, on the eastern foothills of the Eastern Andes, south and east of Rio Negro, but exact positions not known.

Venezuela.—Unless otherwise specified, collecting-stations in Venezuela are those of Mr. Carriker. Mr. Samuel M. Klages, Mr. Ernest G. Holt, and Mr. Harold J. Clement have sent us specimens from various points on the north coast. Most of these locality-names may be found in Lecuna's Atlas of Venezuela (1921).

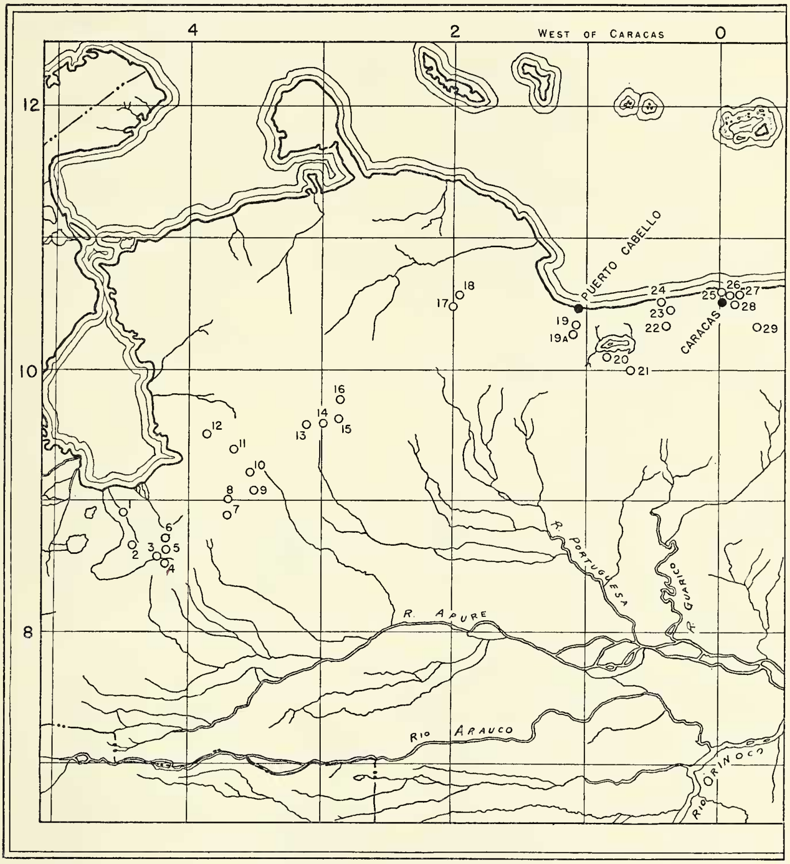

FIG. 2. Map of western Venezuela, to show localities mentioned in text.

1. Guachi.
   Santa Elena, close to No. 1.
2. La Azulita.
3. Merida.
   Chama, just south of No. 3.
   Paramo de Merida.
4. Paramo de Frias.
5. Tabay.
   Heights of Tabay.
6. La Culata.
7. Las Piedras.
8. La Cuchilla.
9. Las Mesitas.
   Teta de Niquitao, between Nos. 9 and 10.
10. Guamito.

11. Motatan.
12. Sabana de Mendoza.
13. Paramo de Rosas.
14. Anzoategui.
15. Guarico.
16. Tocuyo.
17. Aroa.
    Lagunita de Aroa, above No. 17.
18. El Hacha.
    San Esteban, south of Puerto Cabello.
    Las Quiguas, south of San Esteban.
19. La Cumbre de Valencia.
    Naguanagua, west of No. 19.
20. El Trompillo (Klages).
21. Sierra de Carabobo (Klages).
22. Pie del Cerro (Holt).
23. Colonia Tovar (Holt).
    El Limon, south and east of No. 24 (Holt).
24. Puerto La Cruz (Holt).
25. Galipán (Klages).

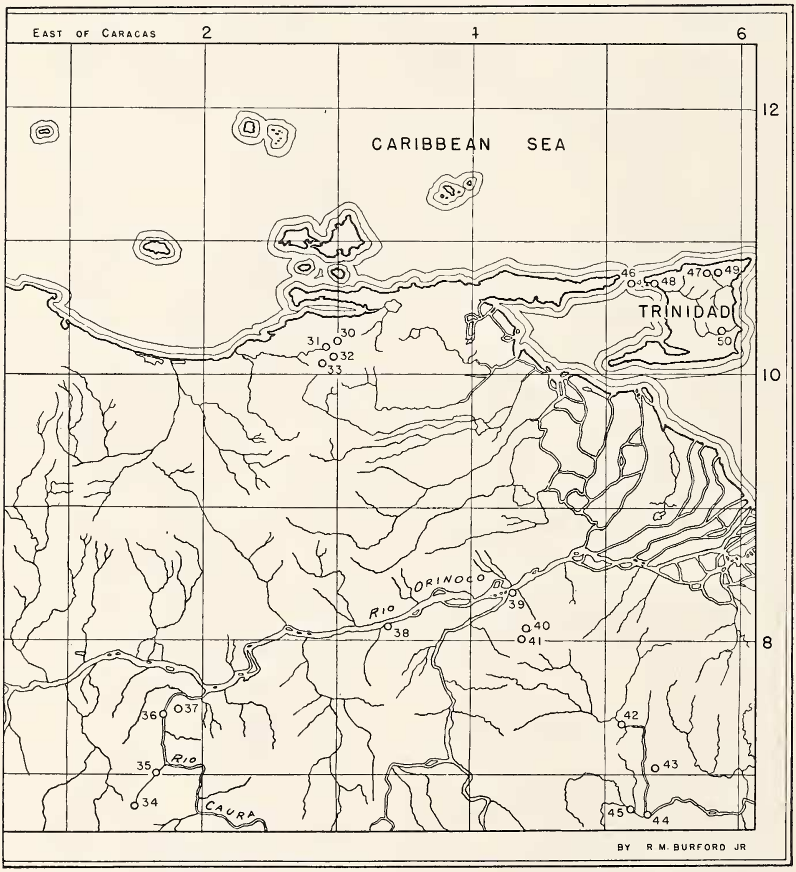

FIG. 3. Map of eastern Venezuela and Trinidad, to show localities mentioned in text.

26. Silla de Caracas (Klages).
    Loma Redonda, close to No. 26 (Klages).
27. Pico Naiguata (Holt).
28. Petare (Holt).
    Mariches, near No. 28 (Holt).
    El Encontado, southeast of No. 28 (Holt).
29. Santa Lucia (Holt).
30. Cumanacoa (Clement).
31. San Rafael (Clement).
32. Mirasol (Clement).
33. El Yaque (Clement).
    El Limon, close to No. 33 (Clement).
    La Elvecia, 3 miles southwest of El Limon (Clement).
34. Rio Mocho.
35. La Lajita.
36. Maripa.
37. El Llagual.
38. Ciudad Bolivar.
39. San Felix.
40. Altagracia.
41. Upata.
    San German de Upata, (close to Upata).
42. El Callao.
    El Peru Mine, south of No. 42.
43. La Bomba.
44. El Dorado.
45. Rio Yuruan.
46. Chacachacare Island (Trinidad).
47. Heights of Aripo (Trinidad).
48. Carenage (Trinidad).
49. Heights of Orepouche (Trinidad).
50. Poole (Trinidad).

French Guiana.—Specimens from this colony were all collected by Mr. Klages at the following localities:

Cayenne.

Mana.

Tamanoir, on the Mana River, in latitude 5° 8′ N.

Pied Saut, Oyapock River, at the foot of the rapids above St. Georges.

Brazil.—Mr. Klages' collecting-stations were as follows:

Demonty, on the right bank of the Oyapock River, not far above its mouth.

Arucauá, in the extreme northern part of the State of Pará, near the French Guiana frontier. This locality was wrongly given as "Rocana" in some of my earlier papers.

Upper Arucauá, about twenty miles upstream (*i.e.*, south) of the last locality.

Benevides, near Pará.

Obidos, on the Amazon (north bank).

Islands near Obidos, in the Amazon River.

Manacapurú, on the Amazon above Manáos.

Rio Manacapurú, near the last.

Tonantins, on the north bank of the Rio Solimoës.

São Paulo do Olivença, on the south bank of the River Solimoës.

Hyutanahan, Nova Olinda, and Arimã are situated on the Rio Purús. For their exact position see Sheet S. B.-20 of the International Map of the World.

Santarem is at the mouth of the Rio Tapajóz. Colonia do Mojuy is south of Santarem, on the Rio Curuá, in about latitude 3° S. Itaituba, Villa Braga, and Apacy are on the west bank of the Rio Tapajóz, and Miritituba and Aveiros on the east bank of the same stream.

Bolivia.—Our Bolivian material came from the late José Steinbach and his son, Francisco B. Steinbach. Most of their collecting-stations may be found on the 1934 map published by the Bolivian Government, or on Pando's map of 1901. In the present paper the following names occur:

Santa Cruz de la Sierra.

Buena Vista, near the last. Rio Surutu, Rio Yapacani, and Rio Dolores are streams near by.

San Carlos, northwest of Buena Vista.

Cerro Hosáne, an elevation west of Buena Vista.

Cerro del Amboró, an elevation south of Buena Vista.

Samaipata, Warnes, Comarapa, and Chilon, in the Province of Valle Grande.

Taperas, south and east of Samaipata.

Buyuivi, in southern Chuquisaca, northwest of Machareti.

Yacuiba and Caiza, in Tarija, southern Bolivia.

Puerto Suarez, in extreme eastern Bolivia, lat. 19° S.

Cafeces (not on map), east and north of Santa Cruz de la Sierra.

Cochabamba.

Rio Quiser, Chiquitos (exact position unknown).

Molle-molle (not on map), close to Cochabamba.

Incachaca, northeast of Cochabamba.

San José, north of Incachaca.

Cerro de Incachaca, the elevation above Incachaca.

Vacas, Pocona, Tiraque, Arani, and Colomi are in the Cochabamba region.

Oruro, southwest of Cochabamba.

La Paz.

Guaqui, at the southern end of Lake Titicaca.

Caluya, position not known, but probably equal to Caluyo, between Palca and Victoria, north of Cochabamba.

Cejas del Juno and Cejas de San Benito, exact positions unknown.